PERFORMING ARTS CENTERS:

DOES UPTOWN CULTURE STIMULATE DOWNTOWN VITALITY?

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ABSTRACT

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Performing arts centers have been touted as a strategy for revitalizing downtowns by increasing activities that bring in residents with higher incomes, tourists, arts employees, educated workers, and housing. Despite their popularity, civic leaders have encountered complexity in these projects, from financial challenges, to delayed openings and operating deficits. Previous downtown studies examine public facilities, such as stadiums and cultural institutions, through essays, surveys, case studies, or by quantifying transactions exchanged between the public and the facility. This dissertation focuses solely on performing arts centers , excluding all other forms of public facilities and cultural venues, by examining self-collected data on literature-based characteristics of 218 downtowns with and without performing arts centers, and on the health of 129 additional performing arts centers, all over a seven-year period of time. It was hypothesized that the presence of a performing arts center would contribute to increases in the values of all downtown revitalization characteristics, and community characteristics, as well as organizational attributes of the performing arts center itself (age, size, and revenue types) would in turn, increase the values of the overall health of the performing arts center. Through the use of multiple linear regressions, this research shows that performing arts centers can play a role in revitalizing downtowns. This research also shows that a single characteristic is not solely responsible for revitalizing downtowns; rather, the increased vitality results from a *confluence* of the characteristics.

Endogeneity tests show that a performing arts center is less likely to enter a deserted downtown bereft of vitality. Instead, performing arts centers serve as harbingers of revitalization, confirming the presence of downtown vitality, before they proceed to activate vitality further. Finally, through the use of binary logistic regressions, community characteristics are identified in order to determine the conditions of downtowns that would be most equipped to open a performing arts center, as compared with downtowns that could not.

Patricia A. Wittberg, Ph.D., Chairperson

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

Performing arts centers have been touted as a strategy for revitalizing a city's downtown area. No longer seen as a luxury for wealthy, elite connoisseurs, cultural programs are now considered to be a key contributor to an active urban economy[1]. The earlier migration in the 1970s of downtown residents to the suburbs had left the once vital urban core bereft of a solid tax base, and lacking a sense of community. Two decades later, the urban core evolved into a community center that generated ideas, attracted educated workers and residents with higher incomes, and provided after-work amenities for downtowners. Along with performing arts centers, stadiums, arenas, convention centers, and other types of cultural institutions were anointed as a strategy for driving economic growth. Civic leaders invested capital into constructing public assembly facilities and restoring historic buildings, in order to rejuvenate the area. But many of these facilities have been expensive to build, and have often used public subsidies which require community buy-in. Feasibility and economic impact studies are launched in order to determine whether a community is able to build, and then sustain the facility over the long haul. Much of the debate about the value of these public assembly facilities has focused on sports stadiums, with some reference to cultural institutions. Separate from these other types of public facilities, performing arts centers contain unique attributes that differentiate them from the rest. These facilities are built for the single purpose of housing live, artistic performances, which embrace acoustical qualities as much as sight lines, and require audience members to experience en masse an uninterrupted presentation on a stage, in a theater.

[1] Wyszomirski (1995).

There have been mutual benefits in linking together performing arts centers and downtowns. Performing arts centers were thought to bring to the downtown area more employees in the arts and recreation industries, as well as entice tourists to visit the urban core, attend a performance, and dine in restaurants before a show. This in turn, would stimulate more spending of discretionary dollars, encourage economic spillovers, and potentially expand the downtown tax base. The longstanding correlation between arts patronage and having more formal education[2] also aligned with downtowns' interest in attracting those highly skilled workers. The presence of the arts, especially the classical performing arts, also tended to portray the area as a place of high quality. At the same time, performing arts centers seeking to be near their audiences wanted the area to be clean and safe for their patrons[3]. Even the architectural components of a performing arts center represented the presence of contemporary life. Newly designed performing arts centers of any style added an architectural feature to the downtown skyline. Those centers that were restored from older, historic buildings attracted visitors to view the inside, as well as attend a show. Additionally, the funding criteria shifted to promote accessibility of the arts. Unlike the nineteenth century, when the performing arts were viewed as elitist, with wealthy financiers segregating the serious arts from popular fare[4], arts funding in the twenty-first century endorsed making the arts available to the masses. Performing arts centers offering a diverse range of genres – from ballet to Broadway, and from symphony music to rock and roll – appealed to a variety of audiences, provided a menu of options for downtowners looking for entertainment, and addressed funding requirements that demanded consideration of the general public. Another source of arts

[2] Birch (2005); Moulton (1999); NEA (2009); DiMaggio & Mukhtar (2004); Gray (2003).
[3] Strom (2002).
[4] Di Maggio (1982).

funding – corporations – often had business leaders who sat on coveted boards of major arts organizations. These same corporate business leaders also had natural interests in downtown development[5], thus tying together the arts with the downtown area.

Although the use of cultural institutions – including performing arts centers – as a strategy for revitalizing downtowns has gained popularity and momentum, beyond the glamour of opening a center, questions remain about how exactly these facilities revitalize downtowns. Previous studies looking at public assembly facilities such as stadiums and cultural institutions, such as performing arts centers, provide a partial understanding of the impact these venues can make on downtown revitalization. Buildings dedicated to cultural, entertainment, and sporting events were built to complement office and commercial spaces in the downtown area, in order to generate tax dollars from businesses and after-work activities[6]. Other studies however, countered that increases in consumer spending, downtown employment, and residential living as a result of the presence of public assembly facilities were not coming from outside of the community; rather, these new downtown revenues were simply a transfer of dollars from other activities within the same community back to the downtown area[7]. Civic leaders, while recognizing the value of performing arts centers in leveraging a spark of excitement and increased activity into the downtown area, have also encountered the complexity of these projects, when it comes to constructing and then sustaining the facility over time. Recent construction of new cultural institutions cite financial challenges ranging from doubling the original construction project budget, to delayed

[5] Strom (2002).
[6] Turner, Rosentraub, 2002; Turner, 2002; Swindell, Rosentraub, 1998; Markusen, 2004.
[7] Baade,1996, 1994; Walker, Enz, 2006; Swindell, Rosentraub, 1998.

openings and miscalculated attendance resulting in operating budget deficits[8]. Numerous studies note that demand for the performing arts through ticket sales alone does not ensure the ongoing financial sustainability of the arts organization over time[9]; yet the numbers of performing arts centers that have been built since the mid-1980s still increased significantly[10], many with underestimated projections of the level of revenues – both earned and contributed – required to sustain the facility.

From a business perspective, it might be puzzling to determine the cause of these escalating costs and operating deficits, despite the community demand for such a facility. Operating deficits incurred by performing arts organizations that do not operate a performing arts facility often result from spending more to develop live productions than their available revenues. But this same explanation is not fully suitable for a performing arts facility. Based on the definition used in this dissertation, performing arts centers present touring products – shows that are produced by other arts organizations – which suggests a financial rental model, where the artistic production expenses are placed less upon the performing arts center itself, and more upon the touring show that rents space to perform in the center. Theoretically, touring arts organizations can execute their productions in a variety of settings, even outside of a performing in a performing arts center; and they can also scale down their production expenses, in order to keep from exceeding their anticipated revenues, whether the revenues come from ticket sales, charitable contributions, sponsorships, or investments. Performing arts centers, on the

[8] Woronkowicz, 2011a.
[9] Kuan, 2001; NEA, 1981; Scott, 2004, 2000a.
[10] Strom (2002) identified 71 major cultural institutions, of which 41% were performing arts centers, built in the United States between 1985-2005.

other hand, may bring in the same types of revenues, but the types of expenses they incur can differ in significant ways that are less related to the production of artistic shows, and more related to how the facility is maintained and used in order to provide an environment for the community to experience artistic productions.

If a performing arts center resides in a community with a larger population, does it follow that there will be increased attendance and higher ticket revenues at shows, or does a larger community population provide more competing activities that redirect the center's attendance elsewhere? If a performing arts center is enticing to audiences with higher levels of education and income, will the center reach audiences with a diverse range of socioeconomic characteristics? Does the presence of a performing arts center increase more tourists, restaurant diners, and arts employees to the downtown area, does that in turn encourage more attendees and ticket buyers to the center? Does the seating capacity in a performing arts center automatically guarantee that the seats will be filled for every performance it brings in, or will a larger center be left with more unsold seats and greater facility maintenance costs (e.g., cleaning, security, ushers, and utilities) than a smaller center? Are performing arts centers that have been around longer also wiser in how they operate, or does the newness of the facility wear off over time, with resulting decreases in attendance and earned or contributed revenues? This research focuses on performing arts centers to the exclusion of other public assembly facilities and cultural institutions, in order to differentiate the performing arts center characteristics from other non-arts facilities, as well as arts organizations that exist for the purpose of *producing* live performing arts shows. A performing arts center facility interacts with its community in a

way that is different from other arts organizations that produce programs, but do not have a venue as the major purpose of their existence. Relative to downtown revitalization, the resulting impact of the presence of a performing arts center will be examined for its ability to leverage socioeconomic activity within its surrounding downtown urban core, compared with downtown cores where no performing arts centers exist. Conversely, similar community characteristics, as well as attributes of the center itself will be examined for their impact on the performing arts center's ability to sustain itself over time.

RESEARCH QUESTIONS AND HYPOTHESES

This research concentrates on two separate but related questions about the interaction between the success of a downtown area and the overall organizational health of its performing arts center (PAC). The first question addresses the relationship between the presence of a PAC and downtown revitalization. The second looks at potential relationships between the characteristics of the community in which a PAC is located – regardless of the downtown's current level of revitalization – and their association with the overall health of the PAC. The research questions posed here involved testing two hypotheses.

Research question 1 – The presence of a performing arts center in the downtown core

Do downtowns with a performing arts center experience greater levels of revitalization than downtowns with no performing arts center?

Hypothesis 1: Downtowns that build performing arts centers will see greater increases over a common seven-year period of time in revitalization levels through the numbers of residential establishments – both occupied and unoccupied – within the built environment, and an increase in the level of human capital through population, education, income, and employment in the arts and recreation industry, than downtowns that do not have performing arts centers.

Research question 2 – Overall health of a performing arts center

Do increases in PAC age, size, location, and community activity also increase the overall health of the performing arts center?

Hypothesis 2: Increases in the overall organizational health of a performing arts center will be positively related to the size and age of these PACs, to the relative amounts of revenue they receive from different sources, and to higher levels of socioeconomic characteristics of the PAC's community in the first year of the seven-year period.

By collecting quantitative social and economic data based on the measures identified in these hypotheses, this research examines trends and patterns of revitalization from several hundred downtowns to identify which revitalization measures are most significantly correlated with the presence of a PAC; and examines the relationship between selected community characteristics, as well as attributes of the PAC itself, and their association with the long-term sustainability and overall health of its PAC.

STATEMENT OF METHODOLOGICAL PROBLEMS

Three methodological challenges emerge when examining whether a PAC makes an impact on its downtown, and in turn, whether the community characteristics contribute to the overall health of the PAC. The first challenge addresses the wide range of geographic boundaries of a revitalized downtown. Does successful revitalization span from one end of a downtown to the other? If Downtown San Antonio is larger in geographic area than Downtown Norfolk, does it mean that San Antonio takes longer to revitalize than Norfolk? If Downtown Boston has more people than Downtown Norfolk, does it mean that Boston is revitalized, and Norfolk is not? The varied downtown boundaries make it difficult to know when a downtown can be declared successfully revitalized. Along with gauging the physical span of revitalized downtowns comes identifying which specific attributes to use when declaring that a downtown is revitalized. Previous studies on downtown revitalization name various characteristics, but not all studies identify the same ones. Finally, there is the issue of finding a standardized procedure for measuring revitalized downtowns. Previous approaches to the research suggest a diverse range of perspectives on how downtowns can be evaluated for their levels of revitalization; but they present a challenge of how to create an analytical framework that best encompasses the total downtown area. For example, using a case study may describe a specific downtown and its surrounding influences, but it may not be generalizable to other downtowns. Examining only one or two out of many attributes of a revitalized downtown limits the ability of researchers to declare when a downtown is revitalized[11].

[11] Faulk (2006, p. 626) noted that previous revitalization studies only described what had been successful in a few cities at a time. These same projects have been adopted as models by other cities, but with little customization, and subsequently less potential to establish a distinctive "sense of place." It could be argued that the commonly-identified attributes in my research might confound the revitalization efforts if

A second fundamental methodological challenge focuses on endogeneity. Does a PAC serve as a catalyst to revitalize a downtown, or is the downtown already revitalized by the time a performing arts center is built? How does one know whether a PAC is an actual cause of downtown revitalization, in the presence of other competing causes? Additionally, other variables within the same urban area may play a revitalizing role, simultaneous to the presence of the PAC being studied. If a downtown without a PAC is already revitalized, then does the entrance of a PAC have any influence to further increase the level of revitalization? Answers to these questions are complicated by the lack of a standard definition of downtown revitalization, as well as multiple ways to measure both revitalization and the impact of a PAC on the surrounding area. But the issue of endogeneity is important because if the appropriate conditions to build a PAC are identified before its emergence, and are then studied after its opening, city planners who are considering a new PAC might be able to predetermine their level of readiness to build.

Finally, the third fundamental methodological challenge emerges when defining a healthy PAC. Is an organization healthy, based upon its balance sheet, or are there alternative, non-financial characteristics which would deem an organization healthy, despite its financial status? If an organization is declared to be healthy, does that mean it will always be healthy in the future? Though touted as a catalyst for increasing the urban economy, PACs are generally subsidized, as they do not typically exist on earned revenue alone.

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generalized to any downtown; however, the comparison process of examining downtowns with no performing arts center will provide an additional checkpoint for determining whether these same attributes truly are valid.

While a financial surplus is certainly a critical characteristic of keeping an organization alive, financial profit and organizational health are not necessarily synonymous.

These three fundamental research challenges call for a methodological approach that addresses the issues at hand. A review of previous studies and how they addressed these same challenges in order to identify what works and where the research gaps remain, constitutes Chapter Two.

METHODOLOGY OVERVIEW

Although existing research does not provide a standardized formula for downtown revitalization, some common attributes acknowledged and examined by other studies describe cities which attempt to attract people back to their downtown areas. This dissertation examines the interaction between PACs and their relationship, if any, to downtown revitalization, based upon these common attributes. I collect quantitative social and economic data from more than one hundred downtowns with PACs to look for trends of revitalization over time, in comparison with similar data from downtowns with no PAC. Compiling and comparing self-collected datasets on these characteristics allows for an examination of patterns of association between PACs and downtown revitalization, and trends of revitalization over time. Conversely, revitalization trends and patterns are also examined for any association with the overall health of a PAC.

Selecting quantitative data allows for a granular representation of the identified attributes. It creates a framework for a measurable process, in order to compare the same attributes

among all downtowns studied, as well as any change in each measure over time. Existing literature on urban revitalization often utilizes a qualitative approach to identify which pertinent issues to address. While the qualitative approach used in downtown revitalization and overall PAC health is valuable in acknowledging the less tangible components of social norms and quality of life, the objective of using quantitative data within this research is to add a substantive level of validation for the questions and perspectives posed in earlier qualitative research.

This research tests the impact of PACs on downtown revitalization, and in turn, the level of relationship that community characteristics have on the overall health of its PAC, by employing multiple linear regression analyses to distinguish which independent variables are most significantly related to each of the dependent variable measures both separately and also within the context of all the dependent variable measures together. Multiple linear regressions are utilized in order to reveal the relative importance of each of the literature-based independent variables. All of the selected data are recurrent, allowing the results of the regression equations to be compared for differences between two points in time.

STATEMENT OF SIGNIFICANCE

Existing research on public-assembly facilities includes PACs; however, the bulk of these studies – whether they approach their analyses through economic development indicators, case studies, or theoretical supposition – are conducted on sports facilities, with some references to cultural institutions. This research paper focuses on PACs alone. Not all

cities are able to attract a major league sports franchise, as there are a limited number of these franchises to go around; however, more cities, as well as smaller communities may be able to make a PAC relevant to their metropolis. These centers often require less upfront costs than, say, sports facilities. Petersen (2001) mentions the lower development costs of performing arts venues, as compared to sports facilities. In 2001, the ability to build a symphony hall for under $100 million contrasted with an arena constructed for 200 million, an enclosed stadium at $300 million, and the Toronto *Skydome* built for $1 billion[12].

Markusen and Gadwa (2010) observe in existing research on the use of arts and culture in urban and regional development, the lack of comprehensive quantitative analyses, as well as an identification of criteria to ascertain whether the use of arts and culture are effective tools. Present theoretical studies that link a causal relationship between cultural industries and economic development are under-tested (Markusen, Gadwa, 2010). By collecting quantitative datasets of both social and economic variables representing downtown urban cores, as well as their surrounding communities, this research incorporates a spectrum of characteristics mentioned in present literature. With the findings of this study in hand, city planners and funders poised to put millions of dollars into constructing PACs will be better able to decide through the use of firmer evidence how to optimize their investment, gauge whether their PACs play a role in revitalizing downtown activity, and whether once in place, the community will be able to support these centers at enough of a sustainable level to remain healthy.

[12] Some new performing arts centers have subsequently encountered construction costs as high as several hundred million dollars (Woronkowicz, 2011b); however in an overall comparison, major sports facilities proportionately still require greater upfront costs.

In summary, studies on downtown revitalization acknowledge the use of public assembly facilities as an urban growth tool, and note the structural characteristics that are distinctly associated with a nonprofit PAC that call attention to its longer-term survival. Present literature about PACs[13] specifically featured case studies, highlighting their management strategies or specific programs. Examples of specific facilities, such as stadiums, arenas, and cultural institutions, have been examined and cited for their downtown revitalization efforts; but few-to-no quantitative analyses have tracked the longer-term impact specifically between the PAC and its downtown environment over a period of time, in order to identify specific characteristics that may affect downtown growth, the relative importance of these characteristics, and which community characteristics have a strong association with the longer-term sustainability and overall health of its PAC. This thesis systematically evaluates such trends and patterns.

It is understandable that public officials and civic leaders ask whether such facilities actually play a role in increasing downtown revitalization activities, or if they are worth the effort, as many of these are highly-exposed, one-of-a-kind venues for the community that require substantial construction and operational subsidies from the government and/or private philanthropy. Making a decision to build a PAC often incorporates preliminary planning studies, combined with risk taking. This thesis draws from more than one hundred downtowns representing a wide range of populations with existing PACs to examine quantitative data based on measures identified from previous studies, to build upon what has been speculative in the past, and lay the groundwork for future

[13] Carter, Prosperi, et al. (2005), Strom (2003, 1999), Gallagher (2003), Cutts, Drozd (1995), Gordon, Stoner (1995), Freedman (1986).

discussion about the most relevant indicators to consider when using a PAC as a downtown revitalization strategy, and in turn, about whether and how a community plays a role in sustaining the overall health of its PAC.

A review of literature dedicated to the subjects of downtown revitalization, nonprofit performing arts, and the overall organizational health is found in Chapter Two – Literature Review, and will provide a framework for this research, to substantiate and validate the specific characteristics chosen for the regressions. The methodology to test these identified characteristics will be described in Chapter Three – Methodology, and the findings will be analyzed in Chapter Four – Analysis, and discussed in Chapter Five - Discussion. Finally, Chapter Six – Conclusions and Implications will bring the analyses to a conclusion, and address implications for this research.

CHAPTER TWO

LITERATURE REVIEW

This research study synthesizes literature on urban sociology, downtown revitalization, the nonprofit performing arts; as well as literature on overall organizational health in economics and sociology, and literature on the nonprofit and philanthropic sector, in order to build connections between these fields of study and create a frame of reference for the relationship between downtowns and PACs. The literature review begins with the theoretical perspectives of urban sociology, downtown revitalization, and the experience economy, in order to provide the conceptual framework for the ensuing strategies used to encourage downtown activity, and to identify the characteristics of people who live, work, and play within the revitalized downtown area. In addition, the review addresses previous studies that deal with the research challenges of defining the geographic boundaries and the scope of downtown revitalization activities, addressing the dynamics within the nonprofit performing arts industry, overall organizational health, and the methodological approaches used to measure their effectiveness. Characteristics identified from previous studies are employed within this dissertation to test the levels of downtown revitalization and gauge the overall organizational health of a PAC.

THEORETICAL PERSPECTIVES

Urban sociology

The theories of urban sociology set a context for the revitalization of the urban core, expressed in the change from the linear and structural emphasis of the Chicago School during the pre-World War II period (Kasarda, Janowitz, 1974), to the more organic

emphasis of the Los Angeles School that began with the shifting demographics in the city of Los Angeles during the 1980s (Dear, Flusty, 2002). The 1920s singularly recognized downtowns as the central hub of activity (Birch, 2005), and density within the city served as a key characteristic to describe the size of downtown. Downtown activities packed into city boundaries generated more growth and capital. (Molotch, 1976; Lloyd, Clark, 2001). After World War II, changes in city dynamics, particularly in the demand and availability of housing (Faulk, 2006) presented challenges to the urban core's survival, as the economy shifted from being an industrial center downtown in the first half of the twentieth century (Lloyd, Clark, 2001; Strom, 2003; Moulton, 1999; Turner, 2002) to retail and manufacturing in the suburbs, with corresponding changes in the demographic and social structure of downtowns. Faulk (2006) noted a direct correlation between the decline of downtown activity and increased suburbanization. Middle class city dwellers who formerly lived downtown in order to be close and accessible to their jobs and businesses saw the opportunity to acquire larger and more affordable homesteads outside the inner city (Dear, Flusty, 2002)[14]. Highways allowed for independent transportation between home and work, and automobiles moved from being only for the wealthy to being an affordable commodity for the general public (Glaeser, Gottlieb, 2006; Moulton, 1999). By the 1970s, even with a 12-percent growth in downtown housing across the nation, the suburban housing market still dominated with an increase of 61 percent (Birch, 2005). Two-thirds of the largest cities throughout the United States had experienced a population decline (Voith, Wachter, 2009). The original use of downtown as the central economic hub for the community had waned, with downtowns hosting an

[14] This activity decline was especially noted in mid-to-larger sized cities with a 1950 population of 200,000 or more in the Northeast and Midwest regions of the United States (Simmons, Lang, 2001).

average of only 44 percent of office space (Birch, 2005). Retail shopping, from department stores to small boutiques followed the migrating population to the large suburban indoor shopping malls (Faulk, 2006), to create what Garreau refers to as, "the malling of America" (Garreau, 1999, p. 4). Retail sales within Central Business Districts fell 51 percent, from more than $17 billion in 1954[15], down to approximately $8.2 billion in 1977 (Robertson, 1983). By the 1970s, downtowns were only active with employment during weekdays. A decade later, even white collar employers and their workers left the downtown area to join the residential and retail populations in the suburbs where they established office parks (Moulton, 1999). The economic benefits from relocating to the suburbs increased, and citizens were able to make more independent decisions on where to live. Suburban land was more affordable than in the cities, and development of this land required fewer regulations (Voith, Wachter, 2009). Downtowns were left desolate with empty buildings, vacant lots (Moulton, 1999), and with the loss of a strong and consistent economic base.

A comparison of the Chicago and Los Angeles Schools of urban sociology revealed a shift in urban theory. Moving beyond the structural features espoused by the Chicago School, the Los Angeles School emerged to support the role that people played within the city. Contrary to the Chicago School theorists' focus on place, the Los Angeles School theorists emphasized the people within the place (Dear, Flusty, 2002). Instead of attention on the impact of large, inanimate structural forces, the behavior and dynamics of the residents within the city set the tone for the urban conditions. Within postmodern

[15] Robertson (1983) analyzed retail sales in 91 cities with populations of 100,000 or more. The comparison of retail sales between 1954 and 1977 holds the dollar constant.

urbanism, a variety of urban scenarios displayed in Southern California further characterized the Los Angeles School. Edge cities began to locate at the intersection of an urban beltway and a hub-and-spoke lateral road. A "shadow government" formed, straddling several municipalities, paying taxes but not always obliging themselves fully to the legislative requirements of a single city. Edge cities proved to be flexible and convenient, but their semi-detached nature inhibited the development of a community pulse (Garreau, 1991). Private housing growth was based on common-interest developments and administered by homeowners' associations. Beginning with fewer than 500 associations in 1964, this phenomenon grew to 150,000 associations by 1992. Bonds formed within these neighborhoods, but also caused settings of defended enclaves at odds with each other (Dear, Flusty, 2002). The rise of minority populations in Southern California, created cultures of heteropolis, with neighborhoods representing mixed identities (Jencks, 1993; Dear, Flusty, 2002). Neighborhood communities were built like theme parks, filled with leisure, entertainment and experiential activities beyond work, suggesting that the American dream of having prosperity and success was easily realized. The warm climate of Los Angeles provided "stimulation without end". With 800-phone numbers and modems, cities changed their physical boundaries. Connectivity changed the parameters of a community (Sorkin, 1992; Dear, Flusty, 2002), and streets did not matter as much. Affluent neighborhoods in Los Angeles were fortified with extra security, with divisions in the areas of affluence contrasting with other, less secure places of violence. The working poor were left to live in mean sections of town; the affluent in the nice areas (Dear, Flusty, 2002). Ultimately, theorists of the Los Angeles School determined that the urban decentralization process leading to suburbanization was not only thriving, but

spreading to other cities, creating a new paradigm for how any city would be viewed. Some of the same characteristics described within the literature on the Chicago School and the Los Angeles School will be represented in this research through the socioeconomic variables used to measure the level of downtown revitalization with and without the presence of performing arts centers.

Downtown revitalization

The enormous popularity of the suburbs and the decentralization of cities resulted in the sense of a loss of place, where people could no longer associate their identity with a specific community. Suburban neighborhoods were niche entities perceived to be untethered to a city, lacking the sense of viability that urban cities once had. One critic labeled them an unsettling environment, "without a sense that the place has a community, or even a center, much less a soul" (Garreau, 1991, p. 14). The flight of the American people to the suburbs was a step away from density and a move toward sprawl; but at the same time, the diminished human contact resulting from spreading out in the suburbs created a gap in positive social interaction (Glaeser, Gottlieb, 2006). Kunstler (1994) refers to the move to Suburbia as, "The geography of nowhere . . . a land where every place is like no place in particular." Looking back, cities originally served as a central hub for social engagement. They were portrayed as places for productivity, but they were also a marketplace for generating ideas and cultural values. By the 1980s, technology had changed the flow of information, and knowledge emerged as an important commodity to have, along with higher incomes and improvement in government (Kunstler, 1994).

Characteristics of the new urban marketplace will be represented in the measures of downtown revitalization for this research.

The experience economy

Consumers in the commercial market began to enlarge their expectations of their interaction with a product, moving from a mindset of purchasing a product as a simple transaction, to shopping as an experience in itself. As downtowns shifted from attention on industrial manufacturing and productivity of the 1960s to amenities for the consumer in the 1980s, the *experience economy*[16] was born, shifting from selling products and services, to selling *experiences* designed for the consumer. Sorkin (1992) likened the consumer experience to an environment similar to the Disneyland theme park, where visitors would go through a utopian, clean garden city; a destination place filled with amenities and structured around fantasy. This mindset of providing consumer experiences transcended the theme park setting, and was applied to the goods and services of everyday life. Services, like goods, began to be commoditized, with businesses selling unique offerings that set themselves apart from their competitors. Using theatrical metaphors, a company intentionally using services as the stage, and goods as props, when combined, was able to create memorable experiences which engaged customers beyond the simple purchase of a tangible product (Pine, Gilmore, 1999, 1998). Since a positive consumer experience was an increasingly critical factor in the actual purchase of a product, encountering cheerfulness and social benefits outweighed the utilitarian function of a purchase, such as miles per gallon or nutritional value. Holbrook and Hirschman (1982) posited that consumption experiences should be directed toward the pursuit of

[16] The *experience economy* was termed by Pine and Gilmore (1998).

fantasies, feelings and fun. Consumer behavior had evolved from making solely rational decisions. Understanding consumers' penchants for leisure activities helped to create and define more targeted and customized products that included multisensory aspects of enjoyment and fun (Holbrook, Hirschman, 1982).

As a result or perhaps as an instigator of these changes, arts and entertainment began to be incorporated into, and accepted as key components of a consumer experience. Even with the exponential suburban growth, the principal city was still recognized for giving the entire metropolitan area its distinctiveness, and for positioning the metropolitan region with the rest of the nation (Birch, 2009). Urban cores began to regroup, and seek strategies to bring back the sense of community as a way to increase their economic viability[17]. Through the density of cities, the urban core now symbolized the new revitalization based on consumption and quality of life (Glaeser, Gottlieb, 2006). Higher end amenities and leisure activities were recognized as a way to revive the community spirit. City developers used cultural institutions and leisure amenities to symbolize the city's sense of place and belonging, and to attract other private commercial activities (Strom, 2003, 2002; Moulton, 1999). Smaller communities refurbished historic buildings – old theaters, churches, and schools – for performances that soon drew in audiences from outside the town (Markusen, 2006). By the 1980s, cities as destinations of leisure became as important as destinations for work. Instead of being a place for manufacturing tangible items, the downtown area was now used to promote an overarching sense of

[17] Urban renewal projects have been around since the 1960s and 1970s, though they differed in profile. Many previous urban renewal projects were funded through federal grants, using large-scale projects such as multi-level office towers and the demolition of historic buildings. The urban revitalization projects of the 1990s and 2000s involved public-private partnerships, with care and attention given to historic preservation, clean and safe streets, and pedestrian-friendly infrastructure (Mitchell, 2001).

community experience (Handy, Boarnet, et al., 2002; Lloyd, Clark, 2001). The traditional perspective of the urban core as an economy of production made way for a new paradigm: that of the urban core as an economy of consumption (Glaeser, Kolko, Saiz, 2001).

The theories of urban sociology provide a historic accounting of how and why downtowns evolved from manufacturing goods to a marketplace that valued the connection of people, information, and cultural activities. Literature on downtown revitalization identify characteristics that describe the definition of revitalization within the downtown core, and studies on the experience economy further emphasize the consumers' move from purchasing a product simply as a business transaction, to seeking a meaningful experience to accompany the product transaction. These theories provide a framework for the reasons downtown revitalization has been studied. The following literature identifies strategies used by communities to encourage the revitalization of their urban cores.

DOWNTOWN REVITALIZATION: STRATEGIES AND CHARACTERISTICS

Key strategies were employed to increase the level of activity in downtowns: upgrading the built environment, as well as the infrastructure that supports and connects the built environment; and ensuring that the right amenities were in place to attract people to come downtown.

The built environment strategy

Studies of urban revitalization generally focused on the architecture of the buildings in the downtown core, how they were physically organized in relation to each other, and the key functions these buildings served in increasing downtown activity. Together with the network infrastructure of sidewalks and streetscapes which connected the buildings, these elements created a total built environment. A wide variety of studies written on the key components of the built environment which are necessary to revitalize the urban core cited the most common characteristic as the mixed use of downtown land. Bringing together a combination of buildings with an assortment of users from retail and office, to residential, entertainment, and tourism increased economic market opportunities, allowed for a varied and stable tax base (Lambert, 2006; Handy, Boarnet, et al, 2002), and promulgated the sense of community (Lloyd, Clark, 2001; Robertson, 1997). Several specific tactics, as described below, were implemented in order to capture the built environment as a contained area within the downtown core. Characteristics from these tactics are used as variables in the regressions for both of the hypotheses in this study[18].

Housing: The tactic of using downtown housing offered residents the opportunity to create ongoing activity after work and on weekends in the urban core (Faulk, 2006). Industrial cities converted large, open space floors in old factories into sophisticated residential lofts (Birch, 2002). Prior to the year 2000, suburban housing overshadowed

[18] Other studies identified additional tactics of the built environment used to stimulate downtown activity: Outdoor pedestrian malls limited automobile traffic and encouraged pedestrians to walk, in an engaged manner, on sidewalks lined with retail shops (Faulk, 2006; Robertson, 1995; Weisbrod, Pollakowski, 1984; Herald, 1977; Stone, Surti, 1974). Vacant and underutilized downtown office space was linked to private hotel and retail stores, or converted into housing or retail spaces (Faulk, 2006; Robertson, 1995; Weisbrod, Pollakowski, 1984).

the market, with 46 percent of the total represented (Birch, 2009), and downtown housing only gaining about 50,000 residential units over a 30-year period of time (1970-2000) (Birch, 2005). In comparison, over three times as many units were added within downtowns over just the first half-decade of the 21st century. Suburbs still contained the greater proportion of housing units, as compared with central cities, but the marked accumulation of downtown residential units signaled increased activity in the city (Birch, 2009). Leinberger (2005) contended that housing should represent two-thirds of the urban built environment, in order to make downtown a success. For this research, the changes over time in residential housing – both occupied and unoccupied – are used as dependent variable measures for Hypothesis 1 – Downtown revitalization.

Retail and restaurants: Along with the consumer mindset established in the downtown framework came an array of retail products and services to draw in employees, visitors, and tourists alike, compacted within the boundaries of the urban core. The 1990s used the tactic of returning a retail component to the downtown area to focus on a higher-income level market of upscale shops, including specialty retail (clothing, furniture, jewelry and boutiques); regional retail (department stores); and local retail (grocery, drug, book, and video stores) (Leinberger, 2005), once again, mirroring the mixed-use conditions of suburban shopping malls, where a consumer could spend a concentrated amount of time walking from one store to another within the confines of a boundary-specific area, browsing or purchasing an assortment of goods (Robertson, 1997). Despite a pattern of fast entrances and exits out of the market, restaurants continued to provide a complementary experience to shoppers and downtowners attending an event (Weisbrod,

Pollakowski, 1984). Since the 1980s, Glaeser, et al., (2001) observed that cities with more restaurants and live performing arts theaters per capita grew faster than those with fewer of those features. For this research, restaurant employees are included as part of the independent variable of arts, hotels, and food industry employees for Hypothesis 2 – Overall PAC health.

Entertainment, leisure and accommodations: The use of downtown entertainment amenities for consumers to partake in their leisure time became a prime tactic in revitalization efforts. A range of activities including sports, historic sites, museums and the live performing arts was noted for giving downtown participants something to do outside of work hours[19]. Beyond their use for entertainment, the presence of these public-assembly facilities implied an aesthetic importance in heightening a city's quality of life (Lloyd, Clark, 2001). Literature on the use of public-assembly facilities for downtown revitalization concentrated on sports facilities, which were seen as promoting a common interest among a span of age levels, races and incomes, and as having the ability to generate excitement and enhance the city's reputation (Austrian, Rosentraub, 2002). Cultural entertainment institutions were noted for providing innovative and distinctive programs which drew in an appreciative audience (Strom, 2003) and accentuated the economic value for the cities with such centers (Strom, 2002; Baumol, Bowen, 1966; Rockefeller, 1965). The urban environment was recognized for its unusual ability to foster creativity, generate audiences and attract tourists (Blau, 1995), and these facilities – convention centers, sports facilities, and theaters – could lure large numbers of visitors

[19] Glaeser, et al., (2001) noted a difference between live performance amenities which appealed to educated workers and those amenities associated with less educated workers. Bowling alleys and movie theaters were negatively associated with population growth.

for a single social and entertainment experience. Robertson (1995) identified three benefits of using public-assembly facilities as downtown revitalization strategies. First, there were spillover benefits when visitors attending an event also spent money at nearby retail stores, restaurants and hotels. Second, these facilities could stimulate new construction around the same area, and third, the facility could spruce up a blighted area. Scott (2004) also noted that industries representing cultural products, including performing arts centers operated more effectively if each cultural establishment was physically located near each other, creating a recognized economic market group. A challenge to the public assembly facility was found in its ongoing usage. When not in use, it could become dead space when there was downtime in the urban core, unless the facility was surrounded by other economic generators (Robertson, 1995; Baade, Dye, 1988; Rosentraub, et al., 1994). More than fifty studies emerged on the value of culture in an economy, which measured the public's willingness to pay for cultural programs[20]. Other studies measured the arts through their economic impact on the local community. A study of 6,080 nonprofit arts and culture organizations, and their 94,478 attendees in 156 U.S. regions measured arts employment, the positive externalities of audience spending, tourist spending, and tax revenues, to conclude that the arts and economic development are not exclusive of each other (Americans for the Arts, 2002); although other studies[21] cautioned that the approach to measuring the economic impact of the arts lay not in the use of zero-sum gross estimates which were offset by losses in other nearby locations; rather, the appropriate analyses of *net* measures better explained new dollars generated in the area, as a result of the industry or project (Sterngold, 2004). Yet, when

[20] As noted by Brooks and Kushner (2002).
[21] Evans (2005), Seaman (2000), Mills (1993), Krikelas (1992), Hunter (1989), as referenced in Sterngold (2004, p. 168).

using net measures, the economic impact study revealed very little added economic benefit to the local community. Studies about downtown entertainment amenities further support the use of the presence of a performing arts center in this research as an independent variable for Hypothesis 1 – Downtown revitalization. The studies also support the use of hotel employees as part of the independent variable of arts, hotels, and food employees for Hypothesis 2 – Overall PAC health.

Human capital characteristics

In addition to the strategy of focusing on the built environment, previous studies noted demographic characteristics present in downtown residents and workers, specifically in the movement away from a manufacturing labor force, increased levels of education, income, residential population, density, and the entertainment and recreation professions.

Entertainment and recreation labor force: The same amenities that attracted employees to downtowns also encouraged tourism and conventions to bring in additional public activities and private dollars from outside the city. The "eating and drinking" occupations supported the downtown shopping and entertainment districts, and became a leading category for urban job growth (HUD, 2001[22]). Leisure pursuits heightened the significance of more refined occupations, like tour guides and restaurant critics to service the well-educated workers (Lloyd, Clark, 2001), and increased the number of workers in the entertainment and leisure industry. The change in the arts and recreation employees over time is used as a dependent variable measure for Hypothesis 1 – Downtown revitalization.

[22] As reported in Turner (2002).

Education: Corporations, in their attempt to attract top employees, supported amenities that would benefit more educated workers, particularly those in the informational industries, including production services, information technology, media production, and finance. Cohen (2000) noted the demand for specialized skills in employees, which required higher levels of educational training. Previous decisions of workers to move shifted from using location as their main reason for taking a job, to availability of education. The minimum reading level required for workers moved from the tenth grade level to the college level (Swoboda, Brown, 1993[23]). Birch (2005) noted education as a significant characteristic in the downtown population shift between 1970 and 2000. Pre-revitalized downtowns revealed 55 percent of their population having attained no high school diploma, with only 13 percent having a bachelor's degree or higher[24]. Demographic shifts in revitalized downtowns showed 44 percent of downtowners having bachelor's degrees or higher, well above the national rate (24%). Those downtown dwellers with no high school education decreased from 55 percent in 1970 to 22 percent in 2000 (Birch, 2005). The change in education levels over time (population with a Bachelor's degree or higher) is used as a dependent variable measure in Hypothesis 1 – Downtown revitalization, and the level of education in the year 2000 is used as an independent variable in Hypothesis 2 – Overall PAC health.

[23] As reported in Cohen, N. (2000).

[24] At the time, these rates of education attainment were proportionately similar to the surrounding city (51% no high school, 11% bachelor's degree or higher) and higher than the suburbs (38% no high school, 14% bachelor's degree or higher). Overall, education attainment levels have increased across the board. Still education levels of the downtown population have significantly increased between 1970 and 2000 (Birch, 2005).

Income: With the flow of information through technology and the increased value of knowledge in the new marketplace came a rise in individual incomes (Kunstler, 1994). Well-educated workers had a higher earning power with incomes to spend on amenities, and sought entertainment activities where they could participate after work hours (Glaeser, Shapiro, 2003). Birch (2005) noted the importance of dissecting median income into separate ranges, as downtowners' economic status included high and low income levels. In her survey of downtown residents in 46 downtowns, 54 percent of the sample had one or more tracts of median income which were higher (between 106% and 532%) than the surrounding city or suburbs. Conversely, 78 percent of the sample also contained the lowest median income levels. By comparing the downtown income levels with the surrounding city and suburb income levels, instead of a comparison of downtowns against each other, the spatial patterns of downtown residential living were highlighted (Birch, 2005). The change in median household income over time is used as a dependent variable measure for Hypothesis 1 – Downtown revitalization, and the median household income level in the year 2000 is used as an independent variable for Hypothesis 2 – Overall PAC health.

Residential ages: Downtown residents chose living within the smaller central business district as an alternative to living in the more expansive suburban neighborhoods, as access to jobs and quality-of-life services and amenities attracted them back to the downtown. Following the earlier flight to the suburbs during the 1970s, the rise of downtown living began to increase significantly between 1990 and 2000, particularly in large cities. The age ranges of new city dwellers shifted to the greatest proportion of

adults aged 18 to 64 (83% of total downtowners) (Birch, 2005), ages representative of the most prime earning years (Linneman, Saiz, 2006). Young professionals aged 18 to 34, with no children, sought an urban core area with a reputation for having active culture and leisure amenities. Baby boomers over 50 became empty nesters, and were mobile enough to downsize their larger suburban living quarters and move to downtown lofts to be nearer the amenities they enjoyed (Moulton, 1999). Although downtown dwellers of the 1960s were proportionately represented by children under 18 and the elderly, by the 1970s, the flight of family households to the suburbs showed the downtown population of children (under 18) declining by 72 percent. By 2000, 71 percent of downtown households did not have children living with them (Birch, 2005). The downtown population of ages 18 to 64 is used as an independent variable for Hypothesis 1 – Downtown revitalization.

Population density: Along with human capital characteristics, population density was identified as an attribute of revitalized downtowns. Birch (2005) noted that overall, downtowns with a denser population count had a greater advantage in attracting even more downtown residents, with more than half of downtown households living in a high density area of 20 or more people per acre. City developers used the natural density of cities to leverage higher housing prices and rents, since urban land area was limited (Voith, Wachter, 2009). Vacant or underutilized land could be designated for urban amenities to attract residents, as opposed to approving low-density residential construction (Birch, 2000). Literature marked density as one of the single most important factors in attracting downtown residents back to the urban core (Birch, 2005; Glaeser,

Shapiro, 2003). At the same time, Glaeser, et al (2001) emphasized that density without amenities would not lure in enough residents or visitors to the downtown area. Population density of the downtown area in the year 2000 is used as an independent variable for Hypothesis 1 – Downtown revitalization.

Geographic areas

Some literature incorporated the human capital variables within geographic regions of the United States. Birch (2005) noted that in the year 2000, of the 46 downtowns she studied with 100,000 or more in population the highest education levels were in the Northwest. The Northeast region ranked highest in income and density levels, although the same region had the lowest downtown population counts. Internal dynamics likely played a role in regional density rankings, as annexation policies in the South and West allow for a broader expansion of territory, whereas spreading out in the Northeast and Midwest regions was less possible (Birch, 2005). Voith and Wachter (2009) later noted that revitalized downtowns were popping up in all regions of the United States, and were not favored in one location; therefore, other variables besides *region* must be taken into account as influential to downtown revitalization. An increase in entertainment and leisure activities may also indicate an increase in artistic activity. In a search for producing artists[25] throughout the United States, Heilbrun (1996) showed a shift in state and region from the 1970s to the 1980s. Studies following the migration of artists to various geographic areas of the United States noted that during the 1970s, the presence of performing artists, especially the celebrity superstars, living in concentrated populations, was particularly heavy on the east (New York) and west (Los Angeles) coasts (Heilbrun,

[25] Producing artists include actors, directors, dancers, painters and sculptors. (Heilbrun, 1996, pp. 283-284).

1996). Performing arts centers have also traditionally situated themselves near larger populations (Strom, 2002), and during the mid-1960s, also concentrated on the east and west coasts, particularly in the more heavily-populated Mid-Atlantic region (Baumol, Bowen, 1966). From 1980 to 1990, a greater dispersion of artists was represented throughout the rest of the United States (Heilbrun, 1996), also increasing the likelihood of performing arts venues in locations beyond the east and west coasts. The geographic regions of east and west coasts, versus everywhere else in the United States is used as an independent variable for both Hypothesis 1 – Downtown revitalization and Hypothesis 2 – Overall PAC health.

Historic buildings

Within the built environment, the restoration of historic buildings has been a tactic of the downtown revitalization strategy. Initially constructed for one purpose, these structures have been converted to other uses including downtown housing (Rypkema, 2001), office accommodations, retail boutiques, restaurants, and local businesses (Robertson, 1997). The value of rehabilitating historic buildings was noted through its economic impact, as well as restoring a sense of place, and in general, restoring a historic structure was noted as more efficient and profitable, since rehabilitation used 60-to-70 percent local labor, with the balance in materials (Mason, 2005). But literature also attributed the popularity of restoring historic buildings in the revitalized urban core, less as a way to reduce expenses instead of constructing a new building, and more as a movement toward developing an aesthetic quality, connecting modern conveniences with the historic past (Turner, 2002; Zukin, 1987). Rypkema (2001) likened a historic building to a capital

asset where through its creation it may have initially produced an economic impact, but made an even longer-term impact through its subsequent reuse. Property values in historic districts have often been higher than other areas (Gale, 1991). Historic structures are nearly all located by existing public infrastructure (i.e., streets, sewer and water lines, gutters, etc.), and were originally built in close proximity to each other, to reinforce social and market interaction (Rypkema, 2002). Leithe and Tigue (2000) noted in the public-private partnership aspect of historic buildings that for every dollar of public funds invested in historic structures between 1994 and 1997, nearly twice the amount was contributed by the private sector. From an urban husbandry approach (Listoken, Listoken, and Lahr, 1998) the unique features of historic buildings brought a social identity to the community, and encourage a sense of place (Faulk, 2006; Rypkema, 2006; Sohmer, Lang, 2001, 1999; Sohmer, 1999). Although not used as a variable in this research, 69 percent of the performing arts centers identified in this research represent restored, historic buildings.

Additional studies about downtown revitalization set further context by describing the *infrastructure* and *types of occupations* in revitalized downtowns, although these characteristics are not used as variables in this thesis.

- *Infrastructure:* The urban core was traditionally designed as a nucleus, with physical links between buildings to serve as an infrastructure for humans to travel throughout the city. Ample roads, bike paths and bridges facilitated easier entrance and exits throughout (Handy, Boarnet, et al., 2002; Moulton, 1999). Undergirding these physical links was a network of support services from water,

sewer, gas, electric, and communication lines, to public safety services. Parking structures, attractive streetscapes, one- and two-way streets and pedestrian sidewalks described a physical framework that many authors believed to be an essential tactic for a vibrant city life (Leinberger, 2005; Handy, Boarnet, et al., 2002). Leinberger (2005) noted that people were willing to walk about 1,500 feet, if they were walking in an engaged manner[26], along an interesting streetscape. A well-thought-out physical infrastructure cultivated a walkable downtown core.

- *Types of occupations:* The economic paradigm had changed from cities traditionally viewed as successful if they could export their goods out to other regions, to having an advantage if they could make their city distinctive enough through goods and services provided by local resources (e.g., child care, restaurant meals, healthcare, household and social services) (Markusen, Schrock, Barbour, 2004). The types of businesses drawn back to the urban core were specialists which needed in-person contact with others: lawyers, bankers, business specialists, and arts and media producers who actively utilized skilled communication with clients and customers on a daily basis (Frieden, Sagalyn, 1990; Markusen, 2007; Markusen, Schrock, Barbour, 2004, Voith, Wachter, 2009). There followed a rise in individual incomes, education levels, and an ability to influence political decisions.

All of these aforementioned studies identify characteristics of the built environment, attributes of those who live, work and play in the revitalized downtown core, and set a

[26] Leinberger (2005) noted that a critical mass of mixed- use structures, including retail shops, grocery stores, housing, restaurants, leisure amenities, and offices must be established, providing visitors with enough in which to engage themselves for a period of four-to-six hours at a time.

context for the way revitalized downtowns have been structured. Characteristics from these studies are used as variables in this research, in order to examine the levels of revitalization in downtowns with a performing arts center, and are compared with the same characteristics in downtowns without a performing arts center.

NONPROFIT PERFORMING ARTS

The second hypothesis of this study focused on determinants of the overall organizational health of these centers. The following section of this chapter will review studies pertaining to this question.

Characteristics of performing arts centers

A deeper examination of the literature about the nonprofit performing arts industry will set a context for identifying which characteristics, trends, and patterns are important enough to examine and use in the definition of the overall organizational health of a performing arts center.

Erickson and Kushner's (1999) study of the sporting events network included the performing arts within a broader category of live entertainment events, with characteristics that further defined such public events and contributed to the definition of a performing arts center. An entertainment event must be performed in front of a live audience, with a limited number of receptions in order to create audience demand and promote sizable attendance. Participating performers were not solely residents of one specific event venue; rather, they made entertainment commitments to other locations

beyond one event. Two main functions – usually, but not always involving separate parties – were generally engaged in assembling the production: the performing arts facility operator who represented the immovable, fixed-asset venue, and the promoter, who supplied the facility with live, touring productions, moving from one venue to another.

Performing arts centers typically fall into two types of hosted status: incorporated nonprofit facilities, and those embedded within a larger financial system, such as those centers hosted by universities, local governments (Hager, Pollak, 2002), or for-profit ventures. All of those ventures, no matter which category they fall into, facilitate exchanges between artists and audiences through performances and presenting programs. Unlike other types of performing arts presenting organizations, Hager and Pollak distinguished performing arts centers as non-producing entities. Artist exchanges and presentations are produced outside of the center itself. Public assembly facilities, of which performing arts centers are a part, are considered to encourage social activities (Lloyd, Clark, 2001) through consumption and/or aesthetic innovation. From a macro perspective these spaces contribute to increasing the quality of life for visitors and residents, with amenities and events that occur after weekday business hours (Strom, 2006). The performing arts centers selected for this research are all nonprofit organizations, in order to provide an equal comparison of key dynamics that connect communities and nonprofit facilities together; and to examine the same financial attributes that keep each PAC sustained over time. A nonprofit PAC is created to provide for the greater good of the community, prohibiting financial benefit from any

shareholders. Conversely, nonprofit PACs operate with a combination of contributed, tax deductible donations, as well as earned revenue, requiring the support of the community to sustain themselves. Characteristics representing these community dynamics are included in the analyses.

The development of performing arts centers

Performing arts centers are not a new organizational form. Twenty-four performing arts centers were operating in the U.S. before World War II, and 26 additional centers opened in the 1950s (Baumol, Bowen, 1996). But the pace of constructing these centers quickened in the mid-1960s, with 148 cities planning to complete cultural centers by 1970 (Baumol, Bowen, 1966). The 1980s began an "urban cultural boom" in cities using cultural institutions as a downtown development tool. Cultural centers, traditionally thought to solely reside in America's larger cities (i.e., New York, Boston, Chicago, San Francisco, Los Angeles) were also popping up throughout the middle section of the nation, with more than seventy performing arts centers and museums in sixty-five cities from Charlotte, to Milwaukee, Nashville, and Seattle having been built or substantially renovated since 1985 (Strom, 2002).

What used to be solely a private effort to erect and preserve such centers shifted to having public-private partnerships for the purpose of renovating city-owned facilities. Urban leaders recognized that upkeep of downtown structures decreased poverty and crime. Federal urban renewal programs unrelated to the arts allowed existing and already-planned performing arts facilities to be included in city urban renewal plans (Rockefeller,

1965). The benefit of using cultural centers in downtown revitalization strategies was not one-sided. From the perspective of cultural institutions, the advantage was mutual, as performing arts centers also benefited from their downtown location. Cultural institutions – particularly those that presented high, classical art – originally served nineteenth century audiences by differentiating their product from popular art. Academic standards of excellence in presentations had prevailed as a priority over appealing to the masses (Strom, 2003). Demographic shifts and financial sustainability issues challenged cultural institutions to broaden their audience reach. Traditional funding sources decreased in the 1960s and 1970s, and cultural institutions attempted to position themselves to appeal to a wider range of audiences by moving toward the commercial side of art. They increased the "show production" value of their performances, incorporated marketing, operated with business professionalism, and promoted themselves to corporate sponsors (Strom, 2003, 2002). In the century before, patrons supported cultural institutions in order to distinguish themselves from a growing immigrant working class (DiMaggio, Useem, 1978). A century later, urban cultural institutions became more dependent on the consumption economy, and began to reconstitute their activities in order to reach out to the demographics of those citizens who were previously under-represented (Strom, 2002). This cultural transformation to a wider audience appeal proved to be a match with urban developers and policy makers in their own attempts to revitalize downtown. Although early arguments for supporting such downtown venues emphasized the number of jobs, consumer spending and positive externalities to direct money back into the economy, several studies (mostly of sports facilities) have since noted the economic impact to be less than profitable (Strom, 2003; Turner, Rosentraub, 2002; Eisinger, 2000;

Swindell, Rosentraub, 1998). Rather, consumers benefitted through the ability to of these urban institutions to coalesce and bring people together, with examples of local news programs devoting a segment to sports, star athletes being revered even after death, and sports fans obsessively discussing the game with co-workers (Sanderson, 1999-2000). These urban amenities made more of an impact in the area of fostering a sense of habitability, by attracting other development projects, and elevating the overall quality of community life (Phillips, 2004), and urban cultural centers were expected to do the same.

OVERALL PAC HEALTH

In assessing the overall health of a performing arts center, this research draws from studies in multiple fields, to synthesize components especially pertinent to nonprofit performing arts centers in their community environment.

Literature on organizational survival

Assuming that a healthy organization is also an organization that is not dying, a considerable amount of literature on organizational survival identified age and size as two key demographic characteristics that played a role in the organization's ability to survive regardless of their field of specialization.

Age: The age of an organization was noted as a primary component to consider in organizational survival. A relationship existed between the age of the organization and its susceptibility to mortality, particularly when it came to the earliest and latest stages of organizational life (Hannan, Carroll, Dobrev, Han, 1998; Evans, 1987). A liability of

newness (Scott, 2003) described organizations in their early development stage, where there were fewer ways and less time to attain enough experience to become reliable. While new organizations were most vulnerable, this liability continued through adolescence, then dropped off, to increase once again when an organization became old. For this study, the age of the performing arts center, from the year it opened, up to the year 2000 serves as an independent variable for Hypothesis 2- Overall PAC health.

Size: The size of an organization was identified as another consideration influencing its survival capacity. The liability of newness appeared to decrease with larger organizations (Geroski, Mata, Portugal, 2007; Frank, 1988) which were typically seen as having acquired more available resources, leaving them with the ability to survive longer (Hannan, 1998); although large organizations were not completely immune from survival challenges. In a study of nonprofits in the Greater District of Columbia, Blackwood and Pollak (2009) found that as expenses increased during an economic downturn, the percentage of large organizations having less than three months of operating reserves also increased. And while large organizations generally appeared more able to survive, they were not dominant in the population count, as the number of small organizations in the U.S. outranked the number of large ones (Scott, 2003)[27]. The productive capacity of an

[27] Size alone does not determine organizational survival, as the organization must be supported by its surrounding community resources. For example, a smaller community that builds a PAC disproportionately larger than what the community can support may not have the resources to sustain the organization. The Rand report (2001) noted that mid-sized performing arts organizations, particularly those located outside of major metropolitan areas, were likely to have greater threats to their survival than large and small organizations. Decreased funding in tough economic times coupled with a decline in audience demand could cause the mid-sized organizations to seek out additional, albeit scarce resources to try to become larger and more prestigious in order to survive; while larger performing arts organizations may already have a greater chance of survival because of their traditional dominance in the community, and small, nimble performing arts organizations survived by using volunteers and fewer resources to reduce expenses (McCarthy, Brooks, et al., 2001).

organization is an appropriate definition for PAC size. A PAC's primary purpose for doing business lies in its ability to host artistic exchanges in its theater(s) and accommodate audience members, which is ultimately tied to the amount of earned revenue from ticket sales of attendees[28]. The theater size of a performing arts center can influence the type of program fare available to audiences. The 2001 Rand report noted that large performing arts organizations will aim to appeal to the largest possible audiences and small performing arts organizations will be more dynamic and diverse in order to serve a more specialized, yet broader market (McCarthy, Brooks, et al., 2001). Mass consumption programs, such as Broadway musicals increased attendance and the ability to pay the bills through earned revenue (Strom, 2002). Broadway touring productions often bypassed the opportunity to present in theaters with a smaller seat count of several hundred, and sought to present in theaters with seat counts of several thousand or more, in order to maximize ticket sales. On the other hand, European classical programs affirmed the highbrow patrons who were socially and economically established in the community, often generating philanthropic dollars as a result (Strom, 2002). European classical programs could lend themselves to a broad range of theater sizes, including those with smaller seat counts. String quartets maximized their sound in theaters of six hundred seats, while a 200-piece orchestra aimed to perform in a theater with larger numbers of seats. For this research, the number of seats in the theater(s) of a

[28] Theater size and total seat count are measures of *potential* capacity and do not take into account actual audience demand and unused capacity. Earlier studies on audience demand in relation to earned income show that, with a few exceptions, available capacity typically exceeds actual demand. At the same time, achieving optimal attendance at every single performance could cause the organization to compromise its operations in other areas, such as reducing the number of performances, only presenting well-known and popular works without including any less familiar contemporary works, or eliminating specific performance days with weak attendance levels but ultimately restricting the schedule of significant donors who wanted to attend on those dates (Baumol, Bowen, 1966, p. 237). Increased attendance is desirable and does reflect demand, but demand and full capacity have traditionally not been synonymous.

performing arts center serves as an independent variable for Hypothesis 2 – Overall PAC health.

Literature on nonprofit organizational health

Previous studies defined a healthy nonprofit organization in many ways, and used multiple measures for these numerous definitions, but lacked a common approach. Literature on the overall health of a nonprofit organization represented a multidimensional system which encompassed the structures and processes of management measures (mission statement, strategic plan, human resources, audit, and information technology) as well as program measures (efficacy, client satisfaction). Much emphasis was placed on the financial component, which undergirded the structures and processes of this multidimensional system, where financially healthy nonprofit organizations had stable histories of collecting ongoing revenues and building financial surpluses for emergency use. Organizational effectiveness was linked to resources provided by external constituents with whom the organization had a relationship (Sowa, Selden, Sandfort, 2004). But the fact that most performing arts centers are not overly profitable raises the question of how they are best able to sustain themselves over time. Revenue sources of a PAC often involve substantial subsidies through public and philanthropic contributions, in addition to the earned income generated through ticket sales and usage fees. In a 2001 and 2002 study of performing arts organizations, which included PACs, this contributed revenue subsidy represented a significant amount of those organizational funds, accounting for up to half of the total revenue of the sampled organizations (Kushner, Pollak, 2003). When it comes to the nonprofit performing arts,

contributed revenue plays a starring role. Even organizations that operate at or near full audience capacity are not able to equally match ticket receipts with the costs of executing a live performance. As a result, philanthropic contributions must close the financial gap (Kuan, 2001; Brooks, 2009; Baumol, Bowen, 1966). Over the years, performing arts organizations have become increasingly more competitive in cultivating and winning over donors, with a greater emphasis on the outcomes of their programs than the traditional approach of encouraging donors to support art for its own sake (Wyszomirsky, 2002). The level of contributed revenue in a performing arts center can reflect the level of connection the center has to its donors. The well-functioning performing arts center requires a mix of revenue sources – both earned and contributed – in order to maintain its overall health each year.

Nonprofit financial health

Several attempts have been made to characterize the financial health of nonprofits. Ritchie and Kolodinsky (2003) noted the difficulty of nailing down a common definition of nonprofit financial performance and discerning the most appropriate financial measures, due to the dearth of studies. They selected six financial ratios (total revenue divided by total fundraising expenses; direct public support divided by total fundraising expenses; total revenue divided by total organizational expenses; total contributions divided by total organizational expenses; direct public support divided by total assets; total contributions divided by total revenue) which were taken from the IRS form 990 to represent three main performance factors: a) fundraising efficiency of total dollars raised per fundraising expenditures; 2) public support, showing the results of an organization's

fundraising outcomes; and 3) fiscal performance, as represented by the ratio of total revenues to total expenses.

A noteworthy study by Tuckman and Chang (1991) approached nonprofit financial health by concentrating on the organization's times of vulnerability, as demonstrated when a nonprofit was likely to cut service offerings when facing financial shock. Four criteria were used to measure the financial vulnerability of 4,730 nonprofits: 1) Nonprofits with *inadequate equity balances*, as measured by the ratio of equity to total revenue, could be more limited in borrowing during financially vulnerable times than those nonprofits with higher levels of equity; 2) Nonprofits with *fewer revenue types* were measured by a revenue concentration index that compared those organizations with revenues from a single source to other nonprofits with equal revenues from many sources. Those with fewer sources were deemed more financially fragile than those with diverse sources. Financial shock may affect one revenue source more than all sources simultaneously, leaving the nonprofit to shift its dependence to a different type of revenue to replace the diminished source; 3) Nonprofits with *low levels of administrative costs*, as measured by the ratio of administrative expenses to total expenses, were less able to cut pertinent operational aspects of the organization during financially lean times. Those with higher levels of administrative costs could more easily cut back on those costs in order to stay alive without damaging programmatic aspects; and 4) Nonprofits with *low or negative operating margins*, as measured by its revenues minus expenses, divided by its revenues, did not have as much of a financial cushion to be able to cut back on program services, if necessary, than those with higher margins. Tuckman and Chang found the majority of

nonprofits studied to have enough financial alternatives during an economic downturn, and that only approximately one percent of nonprofits were in severe financial risk. Health care and supporting organizations were the nonprofit categories most likely to experience financial shock (Tuckman, Chang,1991).

Several other authors built upon the Tuckman-Chang (1991) study. One variation was done by Greenlee and Trussel (2000) who followed approximately 4,000 nonprofits over a three-year period. Greenlee and Trussel used negative net program expenses in each of three consecutive years as a variable measure rather than net revenue, because the focus of most charities was on program services rather than upon profitability. A nonprofit would be financially vulnerable if it was likely to reduce its program expenses in each of the three subsequent years. The Greenlee-Trussel model proved to be especially effective in identifying nonprofits which had the greatest or the smallest probabilities of being vulnerable to financial shock. Those organizations with no strong indicators to predict the level of financial vulnerability were likely to be subject to future misclassification by other researchers (Greenlee and Trussel, 2000). Trussel (2002) later built on the Tuckman-Chang (1991) indicators and previous Greenlee-and Trussel (2000) work on financial vulnerability by studying a sample population of 94,000 nonprofits. By using the same definition of financial vulnerability, where a nonprofit must reduce its program expenditures, Trussel modified some previous indicators (e.g., debt ratio, revenue concentration, surplus margin, but excluding administrative cost ratio) and expanded those indicators to include organizational size, in ten different nonprofit sectors.

Specific to the nonprofit arts sector, Hager (2001) used the Tuckman-Chang (1991) financial indicators as independent variables for 7,266 nonprofit arts organizations that filed an IRS Form 990 in the 1990, 1991, or 1992 tax years. Hager's use of the Tuckman-Chang (1991) ratios of financial vulnerability focused less on whether a nonprofit organization was likely to cut back on its program services during financial shock, and more on the organization's ability to be flexible enough to survive financial shock without closing. In spite of the focus on a specific type of nonprofit sector, Hager found it difficult to generalize the previous research to all arts nonprofits. Theater production companies were the only type of nonprofit arts organization to which all four of the Tuckman-Chang (1991) measures were deemed relevant. Generic arts organizations were most likely to close, and performing arts centers and schools were least likely to close.

Hager (2001) did not expound on the reasons for the irrelevance of Tuckman-Chang (1991) measures when applied to the financial vulnerability of performing arts centers. It is likely that a differentiating factor between performing arts centers and other nonprofit arts organizations lies in the production of programs. As defined earlier, PACs do not produce programs; rather, they host presentations produced by others who often pay rent to perform in the PAC, and this format is reflected in the way revenues and expenses are allocated on the IRS Form 990. Of the four financial vulnerability indicators, *revenue concentration* is likely to be the most relevant, in order to decrease dependency on one sole source. (See footnotes for full explanation)[29].

[29] The four Tuckman-Chang financial vulnerability indicators of nonprofits are examined, for their potential relevance specifically to nonprofit performing arts centers:

Although existing studies defined organizational health through a multitude of indicators, including external networks, constituents, and the state of the organization in its economic environment, financial health served as a foundation for overall health and had the ability to reveal the organization's ongoing capacity for carrying out its mission. In summary, there is little-to-no literature specifically and solely on the overall health of nonprofit performing arts centers. Organizational sociology and nonprofit studies

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1) *Inadequate equity balance*: Nonprofits with greater amounts of equity (liabilities to assets) can be more flexible in leveraging their equity during times of financial shock. With regards to PACs, this indicator would depend upon what would be classified as assets. In a non-PAC arts organization, assets can range from furniture and equipment, to sheet music, copyrights, and any assets with a readily available market which could be used to borrow against, or sold in order to obtain working capital. The same case is true for a performing arts center; however, the assets do not stop with furniture, fixtures, or equipment. If most of the PAC's asset base is the PAC building itself, there would be challenges in borrowing against the building during times of financial shock, particularly if the building is marked solely as an institutional nonprofit asset, held in perpetuity, never to be lent or listed as collateral. Tuckman and Chang (1991) note that existing buildings can be refinanced to free up funds, and mortgages can be acquired on debt-free buildings; but presentations in performing arts center facilities are at the crux of the program services they provide. The infrequency of PACs refinancing their buildings in order to stay financially afloat makes the equity ratio less relevant.

2) *Revenue concentration:* Diverse sources of revenue encourage less dependency on any one type of revenue, should one of its sources decrease during times of financial shock. PACs are likely to be healthier when they diversity their revenue sources. A PAC heavily dependent upon contributed revenue can increase its ticket prices or facility user fees to offset a decrease in donations, in order to keep its programs going. Conversely, a decrease in earned income can be offset by contributed revenue; however, it should be noted that if a financially vulnerable organization is defined by having to reduce its program services, a PAC with a sudden decrease in earned income may reflect an even greater serious issue beyond financial shock; that issue being lack of constituent interest in its programs, which may question the PAC's reason for existence.

3) *Low administrative costs*: Higher administrative costs relative to expenses may allow a nonprofit to reduce administrative costs during times of financial duress before making a negative impact on the programs they provide. PACs choose to handle their administrative expenses in a variety of ways. Some PACs may choose to outsource administrative tasks, and other PACs will incorporate them into the internal organizational structure, making the administration expense ratio too diverse a measure to meaningfully compare among each other.

4) *Low or negative operating margins:* A larger percentage of operating margin allows a nonprofit to use its surpluses during financially stressful times. Because operating margins are typically calculated before depreciation, the margin in a PAC may be interpreted differently from a non-PAC arts organization, particularly if a general arts organization is housed in offices with donated or reduced rent and is less dependent on having large assets that require depreciation, ultimately affecting the organization's annual operating margin. However, in solely comparing nonprofit PACs among each other, the operating margin ratio of revenues minus expenses, divided by its revenues would reveal the capacity of a PAC to retain the revenues received, after expenses.

suggested components to consider in the evaluation of a PAC's health. Because the nonprofit performing arts facility typically represents a significant portion of its asset base, the amount of available working capital may serve as a telling proxy for overall organizational health. Blackwood and Pollak (2009), in examining 2,648 nonprofit organizations in the Greater Washington DC area noted that operating reserves allowed organizations to better function in a relatively smooth manner, especially if faced with revenue shortfalls. For this research, the change in a performing arts center's net revenue (i.e., net gain or net loss) over time is used as the dependent variable for Hypothesis 2 – Overall PAC health.

In summary, the literature on overall organizational health identifies age and size of an organization as key demographic attributes for determining the likelihood of organizational survival. Specific to the overall health of the nonprofit entity, studies focus on key financial components that are deemed critical, some of which are incorporated into this research as variables for measuring the overall organizational health of a performing arts center.

METHODOLOGY REVIEW

Previous studies revealed the lack of a standard definition for downtown revitalization, as well as for overall organizational health. A wide variety of approaches were used to measure downtown revitalization, although few studies used quantitative data, or incorporated sociological as well as economic characteristics through a quantitative approach. This research project is a synthesis of several discrete fields of study, and uses

quantitative data where many earlier studies employed a qualitative approach. A scan of previous methodological approaches from the various fields allows for a synthesis of the assorted means of measuring the effectiveness of downtown revitalization and overall organizational health.

Measuring downtowns: In addition to reviewing the history of the evolution of downtowns, previous studies noted the difficulty of defining their geographic perimeters. Sohmer and Lang (2001) observed in their study of downtowns the variety of size and population within the downtown boundaries, with Downtown San Antonio having the largest geographic area of 5.5 square miles, and Norfolk, Cincinnati, and Lexington each having 0.8 square miles. Boston's downtown population of 80,000 contrasted with Norfolk's downtown population of slightly under 3,000. Conversely, Birch (2009) noted some analyses' use of an area length from the 100-percent corner which had the highest real estate value. Such a measure would standardize the comparison of downtowns; however, unlike its surrounding city, the urban core varied greatly in size and shape from one downtown to another. Additionally, some cities had several downtowns within the same urban core. Birch (2009) identified Cleveland as having two downtowns five miles apart, with one serving as the traditional business district, and the other containing cultural venues, medical facilities and universities. Too, previous authors have not uniformly adopted this 100-percent corner metric as the pure definition of a downtown boundary.

The question of which attributes should be measured for downtown revitalization was addressed in previous studies, although not all studies focused on the same attributes. Some studies noted the architecture of the buildings in the downtown and how they were physically organized among each other, as a key strategy leading to increased downtown activity (Lambert, 2006; Robertson, 2004, 1999, 1983; Handy, Boarnet, et al., 2002). Other studies touted the use of retail, especially through mixed-use facilities containing shops, restaurants, entertainment and hotels – as a development strategy for downtown revitalization (Robertson, 1997), at least for a short-term duration (Weisbrod, Pollakowski, 1984). Conversely, other authors noted that the globalization of the economy, particularly since the 1990s, had reduced the need for mass transit infrastructure when it came to conducting business. Plane flights, the internet, and facsimiles lessened the need to have all market resources within reach (Lloyd and Clark, 2001), thus diminishing the need for physical retail space within the downtown area. Automobiles served as a more prominent form of transportation in a greater proportion of cities of all sizes, facilitating easy access to and from cities, as opposed to heavy dependence on public transportation. Additional studies identified demographic characteristics of the types of people who chose to live, work, or play in the downtown area (Strom, 2006; Birch, 2005; Markusen and Schrock, 2004; Turner, 2002), as well as the social activities which attracted people – human capital – to participate in downtown activities (Turner, Rosentraub, 2002a; Lloyd and Clark, 2001; Eisinger, 2000). Weisbrod and Pollakowski (1984) observed that earlier revitalization strategies of organizing the physical design of downtown were being successfully replaced by newer strategies of

bringing in promotions, such as sponsored activities and initiatives for keeping the streets maintained and trash removed.

Finally, earlier studies on downtowns differed in their methodological approach when measuring the levels of revitalization. Some authors used case studies about downtowns in specific cities. Weisbrod and Pollakowski (1984), in studying the effects of downtown improvement projects on retail activity, examined retail sales of pedestrian malls within eight specific downtown improvement projects, Spirou and Loftman (2004) studied the use of cultural policy to increase growth in Chicago, Illinois, and Birmingham, England. Other authors broadened their research beyond specific communities, but focused solely on a few attributes of a revitalized downtown. Birch (2009, 2005) combined residential growth patterns in 45 downtowns with their surrounding cities and suburbs over a 30-year period of time. Markusen, Schrock, and Barbour (2004) measured occupational data from the U.S. Census, to track local services and show how specialization in the local economic base helps a city grow more than exportation of goods and services outside the region. Looking at growth rates within large, dense cities during the 1990s, Glaeser and Shapiro (2003) tested population growth rates over ten years in 31 cities, by tracking three characteristics of density, weather, and human capital (education and income levels) on population growth rates. By testing house prices, Glaeser, Kolko, and Saiz (2001) noted that cities with more consumer amenities such as live performance venues and restaurants grew faster than those cities with fewer amenities. In another study of urban resurgence, correlations tested for the relationship between three groups of urban versus suburban residents in 26 communities who participated in social and leisure activities (e.g., museum attendance, bar visits, and attendance at movies, rock and classical concerts) to investigate

whether cities facilitated forms of entertainment more than suburbs (Glaeser, Gottlieb, 2006). Faulk (2006) described the downtown revitalization process in eight stages, with Stage 8 as the final definition of full revitalization: a vibrant, multi-use center with diverse activities and low vacancy[30].

Measuring endogeneity: Following the review of literature on downtown revitalization and performing arts centers, a scan of literature found few-to-no studies which directly addressed the question of whether a performing arts center influenced downtown revitalization or a downtown was already revitalized by the time a performing arts center was built. Instead, addressing the endogeneity issue was implied through the methodologies used within the existing studies. Previous methodologies focused on two analytical components: 1) The time period related to when the facility opened, and 2) the level of pre-existing support and perception of what the venue would do for the city in advance of the PAC's opening.

Revitalization literature on public assembly facilities, including sports stadiums and arts venues, was often written from the perspective of building the facility in order to stimulate further downtown activity, implying that the facility was built before the downtown was revitalized. This causality implication is under-tested. Studies of economic impact through sports facilities often assessed the facility's effectiveness through an analysis of spending as a direct result of the presence of the facility, within a

[30] Faulk's downtown development process was divided into eight stages: Stage 1 represented the downtown as a commercial, retail, and government center. Stage 2 showed a decline in the residential area surrounding downtown. In Stage 3, the retail and commercial space began to decline. Stage 4 revealed high levels of vacancies and abandonment. Stage 5 included a commitment by city leaders to reorganize to advocate and redevelop the downtown area. Stage 6 identified specific projects and husbandry of existing downtown areas. Stage 7 began the revitalization process. Stage 8 represented a fully revitalized downtown as a multi-use center (Faulk, 2006, p. 631).

time period. For example, in estimating the economic impact of the Daytona 500 NASACR auto race in the Daytona International Speedway, analysts isolated the race from other external characteristics that influenced the economy of the area. Increases in taxable sales within the county during the time of the annual race were compared with taxable sales relative to the rest of the state. By implementing a time parameter around the sales and comparing the direct sales with sales that might have occurred absent of the event itself, analysts moved toward a more accurate estimate of whether the facility played a causal role (Baade, Matheson, 1999-2000). In a similar approach, some arts studies[31] assessed the economic impact of the arts as a strategy for urban revitalization. Strom's (1999) examination of the New Jersey Performing Arts Center incorporated the public and private construction costs, tax revenues from employment, investment revenues, ancillary sales and multipliers for indirect spending at the time of its opening, to reveal only a marginal economic impact to the Newark area.

Relative to a before-and-after examination of community impact, a telephone survey assessing the potential need for a new arena in Indianapolis was given to more than 1,500 random households in May, 1996, following the season of the Indiana Pacers basketball team, to determine the public's perceived importance of the team to generate civic pride, amidst other local cultural amenities (Swindell, Rosentraub, 1998). Such a survey represents an approach to testing the pre-existing conditions for building a facility. Similarly, studies of the arts' influence on urban development searched for the types of communities that would be most conducive to an arts-based strategy, noting that pre-existing support of the arts within the community spurred the physical development of

[31] Markusen (2007); Spirou and Loftman (2004); Throsby (1982).

arts facilities, and subsequently opened the door to city revitalization (Whitt, 1987). While the lack of pre-existing arts support does not prohibit non-arts cities from developing a cultural strategy for revitalization, communities that were able to start with what presently exists in their local arts environment, including a stable level of present arts funding (Montgomery, 2003; Whitt, 1987) had an opportunity to build upon and increase their pre-existing support (Phillips, 2004; Scott, 2004).

Other variables within the same downtown, such as those previously identified may also play a revitalization role simultaneous to the facility being studied. Weisbrod and Pollakowski (1984) mentioned the difficulty of attributing economic growth solely to a specific project in the presence of nearby projects, but also saw the possibility of attributing growth effects to the project if there were consistent patterns of observed chances among other downtowns studied for the same effects, as a result of the same type of project. This research paper examines the same variables in more than two hundred downtowns with and without PACs to identify any patterns of revitalization within a specific time period, to best isolate the relationship, if any, between a PAC and its effects of revitalization.

Measuring organizational health: Similar to the varied attempts to define downtown revitalization, there exists an array of studies that define organizational health in different ways. Literature representing a wide spectrum of theoretical perspectives on organizations identified a myriad of characteristics that could serve as indicators of organizational health. Considerable literature on organizational survival identified age

and size as important components to measure; yet the differing approaches to measuring age and size made it challenging to standardize a comparison with other studies using the same components. Defining the parameters of age and size may also be determined by the industry in which the organization exists. In studying the automobile manufacturing industry, Hannan, Carroll, et al. (1998) noted three different ways of determining the birth date of an organization: first, with no prior organizational experience at the time of entry into the industry; second, the date the organization either merged with another manufacturer, or divided into multiple firms; and third, on the date an already established organization entered from another industry. They also defined size by an organization's annual production of automobiles (Hannan, Carroll, Dobrev, Han, 1998). Kimberly (1976), on the other hand, noted two other competing definitions of organizational size, where one interpretation described size as a structural characteristic of an organization, and a second description of size included multiple aspects of an organization (e.g., history, charter, technology, number of sites, etc.) which together, defined the size. Alternatively, in her research of the savings and loan industry, Haveman (1993) defined organizational size as the amount of assets invested in new client markets. Other literature defined organizational size by the number of employees, or productive capacity of the organization (Scott, 2003) [32]. Specific to nonprofit organizations, previous studies differed on the indicators which would be most useful in measuring nonprofit

[32] Selection of either the number of employees or the amount of assets may not provide consistent values to measure PAC size. In the case of employees, performing arts centers differ in the way they hire paid employees. For example, two PACs may each have 40 paid employees, but the first PAC may hire all 40 employees plus benefits to be on their staff. The second PAC may hire ten staff employees, with the remaining 30 hired as contracted employees without paid benefits for a similar scope of work as the staff of the first PAC. The number of paid employees will be recorded differently on each I-990 form, causing an unequal comparison of systematic recorded data. Similarly, the use of asset amount poses another potential misrepresentation for measuring PAC size. Recorded fixed assets will include the physical facility if it is owned by the PAC's I-990 form, making larger, city-owned facilities appear as small PACs on the I-990 form.

organizational health. Financial components were identified as critical to determining the viability of a nonprofit organization. Tuckman and Chang (1999) noted that nonprofits with fewer revenue types could be more fragile in tough times than those with a diverse array of sources. Contributed revenue was deemed necessary to subsidize and close the financial gap of a nonprofit performing arts organization (Kuan, 2001). But other studies noted that the financials represented only one of several characteristics of a healthy nonprofit organization. Sowa, et al. (2004) described a multidimensional system that links to management and program measures, as well as financial measures to determine the effectiveness of a nonprofit, due to the assorted divisions within its organizational framework. Specifically related to a nonprofit cultural facility, Strom's (1999) case analysis of the New Jersey Performing Arts Center, Strom (1999) identified indicators for organizational success through attendance records, audience surveys and media reports which engendered the perception of a viable and popular project, even if the arts facility was running operating deficits. These disparate indicators of organizational health identified by existing studies made it more challenging to find a standardized way of measuring the health of a performing arts center.

Methodology approaches: The methods of determining the value of downtown revitalization, the use of the arts, and overall organizational health varied extensively; this was likely for several reasons. Lack of a standard definition for each area not only encouraged each study to create its own interpretation of the definitions, but also endorsed the selection from an assortment of criteria to evaluate the end results. If, for example, a study measured the level of downtown revitalization solely through economic

impact, the measurement may provide a more factual, countable and verifiable evaluation, but may also bypass finding subjective aspects of what criteria people valued the most in revitalized downtowns. Similar methodological dilemmas were present with the evaluation of the nonprofit performing arts, when determining whether the economic challenges of the arts outweighed their ability to establish a sense of identity. Furthermore, the criteria used to assess overall organizational health could depend on the purpose of the organization's existence, which complicated the selection of criteria common to all organizations. Present themes for choosing the appropriate methodology for downtown revitalization alternated between seeking the economic impact versus a quality of life. The methodological dilemmas of defining organizational health centered around which characteristics of an organization should be studied. The following methodological approaches are found in the literature reviewed for this thesis, and are described below.

Case studies: Most of the case studies examined here reflected anecdotal characteristics highlighting the uniqueness of those downtowns being studied, but may not necessarily be generalized to all downtowns. Raw, socioeconomic data often accompanied these case studies to summarize the information already reported[33].

[33] CASE STUDIES: Case studies ranged from single-case cities to several-city examinations, with little-to-no cross comparisons. General characteristics of downtown revitalization were featured in the sunbelt cities of San Diego, Phoenix, Orlando, and Jacksonville, FL to determine if the decisions made by city leaders about development affected downtown accessibility (Turner, 2002). Strom (2006) described changes in downtown functions in Philadelphia, Charlotte, and Seattle. Faulk (2006) examined downtown revitalization in the mid-sized cities of Albany, NY and Jeffersonville, IN. Single case studies of revitalization in Minneapolis (Baerwald, 1978) , New Orleans (Brooks, 1993), and use of the arts in Newark (Strom, 1999) were joined by sports facility studies of St. Louis, Seattle, Phoenix (Safir, 1997) and Baltimore, Cleveland, and Cincinnati (Kalich, 1998). Sawhill and Williamson (2001) used a performance model taken from the Nature Conservancy to measure the levels of organizational impact, activity, and internal capacity.

Surveys: Another approach in the downtown literature used surveys to draw out those difficult-to-measure beliefs, particularly when focused on the social spillovers of revitalization. Interviews questioning the public's willingness to pay for a public assembly facility were then compiled to find the public sentiment on a revitalization project that was either already built, or as a preliminary test in advance of the proposed project[34].

Essays: More than half of the studies were written as essays on the concepts and beliefs of the authors, or as observations of trends and patterns on downtown revitalization. These studies can set a context and provide a conceptual framework for future empirical research[35].

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[34] SURVEYS: Cohen (2000) surveyed corporate leaders about their decisions on where to locate their companies and the type of employees they recruited, relative to the city environment. Robertson (2004) surveyed 40 project managers of the Main Street historic preservation program for downtown development, and examined revitalization by surveying the planning departments of 108 smaller downtowns (1999). In analyzing the intangible benefits of having a sports stadium, Swindell and Rosentraub (1998) surveyed Indianapolis residents for their opinion on whether sports teams and other local amenities generated a sense of civic pride. Hager and Pollak (2002) tested the capacity of 800 performing arts presenting organizations through surveys which included the organizations' self-perceptions of their own internal operations (fiscal health, managerial leadership) and external outreach (diversity, audience development, and use of technology through ticket sales and communication) using descriptive statistics to produce an overview of their ability to perform. Kushner and Pollak (2003) used surveys from 1,469 nonprofit performing arts organizations in the years 2001 and 2002 to assess their financial performance, using descriptive statistics to summarize the trends affecting the sector.

[35] ESSAYS: General observations on downtown revitalization trends and key elements associated with urban development were noted (Fillion, Hoernig, Bunting, Sands, 2004; Frieden, Sagalyn, 1990; Kunstler, 1994; Leinberger, 2005; Molotch, 1976; Moulton, 1999; Robertson, 1997, 1995; Stern, 1998). The historic preservation component of downtown revitalization was addressed by Listokin, Listokin, Lahr (1998); and Rypkema (2006, 2002). Use of cultural amenities in regenerated downtowns was described by Evans (2005); Lloyd & Clark (2001); Montgomery, (2003); Phillips (2004); Scott (2000); Strom (2002); and Whitt (1987). Discussion on the use of sports facilities as catalysts for downtown activity was authored by Cardwell (2000); Chapin (2000); Erickson & Kushner (1999); Miller (2000); Sanderson (2000); and Turner, Rosentraub (2002). Discussion of structure and dynamics of arts organizations described the challenges of functioning as a nonprofit organization (Cutts, Drozd, 1995; Blau, 1995; Freedman, 1986; Wyszomirski, 2002; Rockefeller Brothers Fund, 1965; Kuan, 2001).

In addition to case studies, surveys and essays, other downtown studies – particularly those focused on the use of cultural and leisure amenities as catalysts for revitalization – addressed the economic impact of the project.

Cost benefit studies were occasionally used to assess whether the specific costs of a project would subsequently return enough benefits to warrant having the project. These studies were associated with a specific facility that was touted for increasing activity in the community. These analyses measured direct market costs in building the facility, while the challenge to the studies lay in ensuring that the identified subsequent benefits derived from the project were comprehensive enough to provide a complete picture of the project's worth[36].

Economic impact studies: Downtowns have used economic benefits as a prevailing argument for revitalization efforts. Literature on the use of public assembly facilities in the downtown core have also focused heavily on the economic aspects of the venue. Despite private ownership of sports teams, sports facilities have worked to justify themselves as a construction project worthy of taxpayer funding. As a result, research has turned to a methodology that is market focused. Research on the use of arts facilities is less common, yet the recurring pattern of present arts-for-revitalization studies has been to take a stance on the economic value within the local community by looking at the

[36] COST-BENEFIT ANALYSES: Throsby (1982) applied a cost-benefit analysis to the Mildura Arts Centre in Victoria, Australia, to measure the initial capital expenditures, operating costs and revenues combined with a survey to Mildura citizens of their perception of the facility's value to the community. A similar analysis was drawn from Mildura's willingness to pay for the Centre, or whether it should be publicly funded. Stone and Surti (1975) performed a cost-benefit analysis based on the direct costs used to build the downtown pedestrian mall on 16th Street in the Denver central business district, and compared the results with two other mall configurations.

direct and indirect expenditures of the arts facility project. Unlike a subjective report, economic impact studies can be noted for their ability to quantify community activity in a dollar form. Some challenges may occur when measuring the number of times the same dollar is spent within the local community, or whether the dollars resulting from the presence of a downtown revitalization project are really just old dollars coming from a local suburb, transferred into the urban core instead[37].

Regression: Some research of downtowns used regression analysis to determine whether the identified characteristics predicted revitalization efforts. Most regression tests were conducted on socioeconomic data, as opposed to the direct market expenses utilized in the cost-benefit or economic impact analyses[38].

[37] ECONOMIC IMPACT: By the collecting economic data from 156 locations and 6,080 nonprofit arts organizations and their 94,478 attendees, the Americans for the Arts (2002) studied the effects of the arts on the nation's economy based on full-time jobs, household income, and available local and state government funding through grants, taxes and fees. A basic working equation to calculate the economic benefits in each community is provided. In addition to testing for intangible social benefits, Swindell and Rosentraub (1998) reviewed the economic impact of sports teams and facilities through employment, residential location, and expenditures made by sports fans, to determine that new economic benefits are not accrued to the region, although there is evidence that sports fans have been attracted as visitors to the downtown area. Baade (1994) used a slightly different approach to test the economic impact level of new sports stadiums and teams in 36 cities over a 29-year period of time (1958-1987). Each city's general economic activity pattern was tested without the presence of a sports facility or team, and declared as a fixed effect, representative of the city's economic activity profile. After adjusting for each profile, the entrance of the sports stadium or team was tested to reveal whether economic activity was new, or simply realigned within the same metropolitan area.

[38] REGRESSION: Glaeser, et al. consistently utilized regression in studies of urban resurgence. An examination of the relationship between skilled workers and urban growth, with urban growth as the dependent variable, tested for change in wages (nominal and real), weather, and migration in the city and suburbs relative to education levels, with findings suggesting that the skill level better predicted productivity growth as well as an increase in amenity levels (Glaeser, Saiz, Burtless, Strange, 2004). In another study, the importance of consumer amenities, such as restaurants, and theaters, as well as good schools, beautiful city-scapes and ease of mobility, facilitated the dependent variable of population growth over 22 years (1977-1995) (Glaeser, Kolko, Saize, 2000) In their study on the economic influence of a sports stadium, Dehring, Depken, and Ward (2006) used a hedonic method to measure the impact that an announcement of the construction of a potential Dallas Cowboys stadium would have in the Dallas-Fort Worth area on the dependent variable of residential house values by examining the public reaction following three separate announcement dates (versus actual pre- and post-construction analyses). From the perspective of nonprofit organizations, Greenlee and Trussel (2000) used a logistic regression to test the

In assessing the range of selected methodologies, a large number of studies observed and discussed common themes found in downtown revitalization. Overall organizational health analyses – particularly those of the nonprofit sector – examined a handful of attributes at a time, but few tested the relative importance of all the attributes together. Additional research can further analyze present studies through empirical research. A Literature Review Table, located in Appendix D summarizes the studies cited in this thesis.

Tuckman-Chang (1991) financial ratios on nonprofit organizations, with financial vulnerability as the dependent variable, then computed the probability of vulnerability for each of the 12,000 charities tested by returning to the actual ratios for every organization. From the field of organizational sociology, Hannan, Carroll, et al (1998) measured the density of organizations in the environment, relative to organizational age and size, and industry age, with mortality rate as the dependent variable. Evans (1987) analyzed firms in 100 manufacturing industries for a relationship between firm age, and size, relative to the growth of firms (dependent variable) over a ten-year period.

CHAPTER THREE

METHODOLOGY OF THE CURRENT STUDY

This research compares characteristics of downtowns of all shapes and sizes, to test the relationship between a PAC and downtown revitalization, in comparison with revitalization levels of downtowns with no PAC. The community characteristics, as well as attributes of the PAC itself are then examined for their ability to sustain the PAC over time. Data are assembled from selected characteristics of downtowns, based upon previous studies about downtown revitalization and the overall health of an organization. Multiple regressions are used to determine which, if any, of the independent variables have the strongest relationships with downtown revitalization and with the overall health of a PAC. This chapter identifies the selected variables, and describes data collection strategies and analytical methods for both hypotheses.

The analyses use data from three sources – the U.S. Census Bureau, the *Guidestar* nonprofit database, and the *Social Explorer* database – to examine socioeconomic characteristics within downtowns. For the first hypothesis on downtown revitalization, the analysis tracks the changes in these characteristics from 2000 to 2007 in downtowns with the presence of a PAC and compares them with the same characteristics in downtowns that did not have a PAC in the same time period. For the second hypothesis on overall organizational health, the financials of nonprofit PAC – revenues and expenses – are checked, along with the socioeconomic characteristics of the metropolitan areas in which the PACs existed.

Populations

Two populations are studied for the first hypothesis on downtown revitalization, where socioeconomic characteristics of 122 downtowns with the presence of a PAC that opened its doors to the general public between the years 2000 and 2006[39] are compared with the same characteristics in 96 downtowns with no PAC present during the years 2000 through 2007. The second hypothesis on overall organizational health draws solely from 129 PACs that opened prior to the year 2000, in order to measure changes in their overall organizational health over a seven-year period of time (2000-2007).

Figure 1 below shows an input path diagram for Hypothesis 1 – Downtown Revitalization – with the downtown revitalization measures regressed on the independent variables of the Presence of a PAC and its accompanying downtown characteristics. Figure 2 shows a path diagram for Hypothesis 2 – Overall PAC health – with the dependent variable of the percent change in net revenue (net gain or net loss) over time regressed on the independent variables of the characteristics of the PAC communities, as well as attributes of the PAC itself.

[39] Although the years 2000 and 2007 are selected as the beginning and ending points for tracking the characteristics of downtown revitalization, the year 2006 is selected as the end year for measuring the age of a performing arts center, in order to give time to assess any relationship between the opening and the level of downtown revitalization. A PAC which opened its doors to the general public in the year 2006 would be age one, and a PAC which opened its doors in the year 2000 would be age seven.

Figure 1

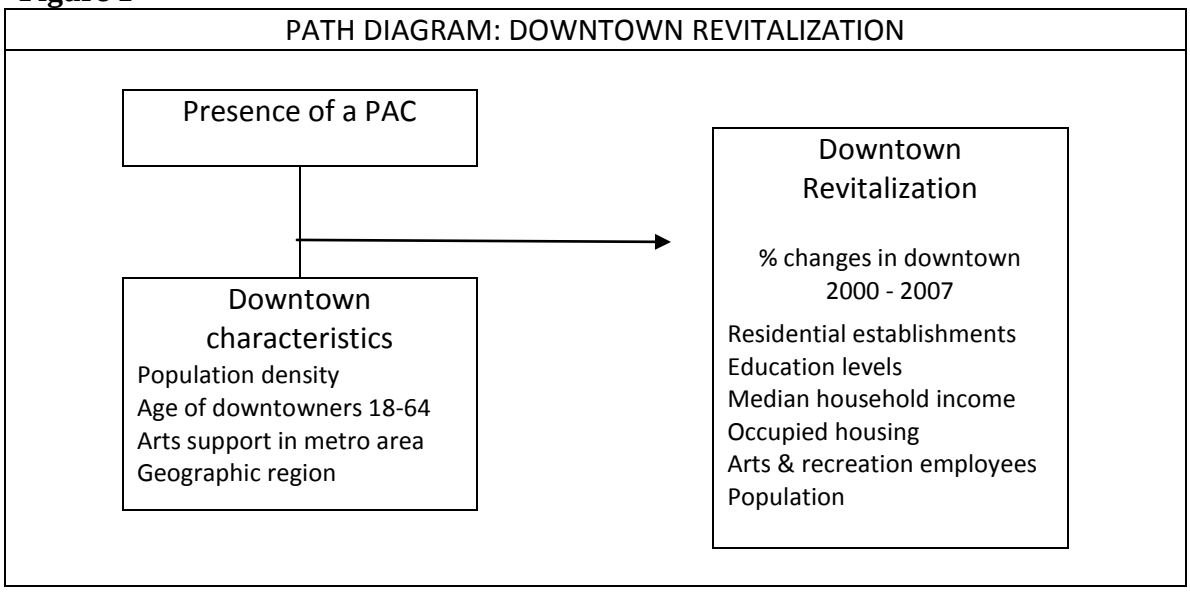
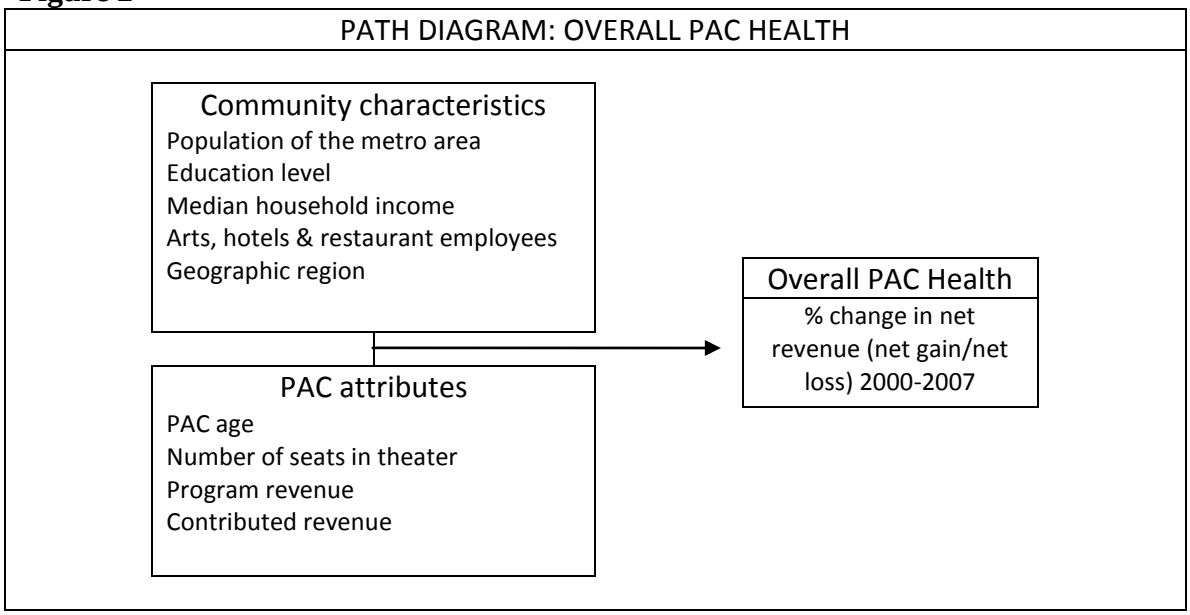


Figure 2



Selecting PACs and downtowns – Hypothesis 1

Selecting performing arts centers

Although performing arts centers represent a wide array of characteristics, with each center containing some but not necessarily all of them, the selected PACs used in this study contain criteria from the following definition:

> *A performing arts center (PAC) is a freestanding, public-assembly facility, maintained by a nonprofit organization or a government department, operating year-round with paid staff in an enclosed, fixed asset building that contains at least one theater. The primary purpose of a PAC is to host live performances that span multiple genres*[40] *The PAC sells tickets to the general public for performances executed and produced by touring companies, resident companies and/or presenters from the community.*

Historic buildings are also included in this study. While brand new performing arts facilities have sprung up across the United States since the 1970s, many other PACs emerged out of renovated historic theaters, built during the first half of the twentieth century (1910-1940) that had permanently closed for business in the 1970s and narrowly escaped demolition when their original attendance declined as a result of the population migration from downtown to the suburbs. Eighty-four (69%) of the 122 PACs used in this study of downtown revitalization are housed in a restored, historic theater. The established birth year of those PACs housed in renovated theaters is the year of its most

[40] PACs presenting a menu of multiple-genre performances within the same facility are able to appeal to a broader range of audience types with a variety of tastes in the arts (e.g., from European classical, to touring Broadway productions, rock, country, and jazz). Those performing arts venues that specialize in a single genre for productions (e.g., opera houses, symphony halls, repertory theaters) may have a narrower reach to specific types of audiences, and are omitted from this study.

recent re-opening to the general public. All PACs used in this study are currently operating, as of this writing[41].

Selecting downtowns

Despite the challenge of having no official standard for determining a downtown's physical perimeters, the geographic boundaries of a downtown are addressed first[42]. The definition of a "downtown" used for this study is drawn from a generally agreed upon understanding that "downtown" represents a hub of commercial activity (e.g., office, retail, culture, and entertainment); historically serving as the centrally-located business center of a community. For Hypothesis 1 – downtown revitalization, a two-step process identifies the populations of downtowns with performing arts centers which opened between the years 2000 and 2007, as well as those downtowns with no PAC present during the same years. The list of Central Business Districts from the 1982 Census of Retail Trade produced by the U.S. Census Bureau serves as the basis for selecting downtowns[43]. These 1982 CBD boundaries were established by local public officials in

[41] PACs owned and operated by universities often are created as educational and outreach tools, and generally are located on university campuses without the intention of serving as a downtown revitalization strategy. Similarly, for-profit PACs are likely to be built as adjuncts to other nearby commercial ventures (e.g., hotels, shopping malls) all under the same ownership, and not necessarily located downtown. For these reasons, PACs owned and operated by universities and commercial ventures are not included in this study.

[42] Literature noted several specific approaches to measuring the downtown area. If studying only one downtown sector, the official boundaries were defined by the local public officials. Other research referred to the Metropolitan Statistical Areas (MSAs) which covered a multi-county area. Data within each MSA included numerous economic variables, and while the downtown area typically lies within each MSA, the MSA unit spans a broader area, sometimes including suburbs. *Demographia* (2006) defined central business districts through the census tracts that contained a concentration of tall commercial buildings, generally more than 10 floors within the historical downtown core. Additionally, Birch (2005) noted another approach to defining downtown boundaries, through specific radius of a mile measurement, stemming from a city's "100 percent corner". This corner site is determined by the intersection valued highest in real estate.

[43] In 1982, the U.S. Census Bureau identified central business districts (CBDs) for 456 cities. CBDs were defined as a parcel of land with very high land valuation comprised of a high concentration of mixed

each metropolis and sanctioned by the U.S. Census Bureau[44]. Each of the 456 CBDs has been examined for the presence of a performing arts center within its perimeters, and every CBD with a PAC has been checked for the PAC's birth year. Sixty of the CBDs contain a PAC born in the years 2000 through 2006 and serve as the framework for the population of downtowns with a PAC studied. This population was then enlarged by checking the membership directory of performing arts presenters published by the Association of Performing Arts Presenters (2009). An additional 62 PACs that opened between 2000 through 2006 and their corresponding downtowns were identified and added to the population for study. Those downtowns which were not on the original list of CBDs from the 1982 Census of Retail Trade were checked online for their boundaries through each community's downtown maps, produced on their websites through civic associations such as convention and visitors bureaus, downtown councils and chambers of commerce. Conversely, the remaining CBDs from the 1982 Census of Retail Trade found to have no presence of a PAC in the years 2000 through 2007 form the comparison population for study[45].

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commercial use and high traffic flow (U.S. Census Bureau, 2009). Each CBD followed existing census tract boundaries and consisted of one or more whole tracts.

[44] The list of CBDs was discontinued after the publication of the 1982 Census of Retail Trade. As a result, some CBD boundaries may have evolved over subsequent years. As a check for completeness, each selected CBD tract was inspected for any changes in tract numbers or boundaries between 1982 and 2000 through historical census tract maps in the *Social Explorer* database.

[45] Each of the selected downtowns were checked for any outlier values that might distort the regression results, making the findings more significant than they should be. As a result of finding extreme values, New York City was removed from the population studied. All other downtowns were left in the study for two reasons: First, there was no substantial improvement in the normal distribution curve, as a result of omitting them; and second, because downtowns vary significantly in size, the remaining population was overall more representative of downtowns by nature.

Variables –Hypothesis 1

Measures of the dependent variable –downtown revitalization

Social and economic variables for measuring changes in downtown revitalization activity are collected from historical census data[46]. The dependent variable for downtown revitalization is identified by computing the percent changes in six separate measures – residential establishments, education level, median household income, residential population, employment in the entertainment and recreation industry, and population for each downtown involved between 2000 and 2007[47]. For each of these measures, it is assumed that an increase in the percent change of the measure represents an increase in that aspect of downtown revitalization. The selected years of 2000 and 2007 allow for an examination of any changes over a common seven-year period of time in order to minimize possible differences in social and economic influences which may have otherwise affected downtowns during other time periods.

The built environment, noted as a major determinant of a revitalized downtown, is represented by the number of physical buildings present within the downtown area. A wide variety of studies on the built environment cited the presence of residential housing – both rented and owned – in combination with business establishments that supported an assortment of uses (from retail and office, to entertainment and tourism), as key components for revitalization which increased market opportunities, and promoted a

[46] Data for the year 2000 are taken from the 2000 census, as recorded by the U.S. Census Bureau. Data for the year 2007 are taken from estimates created in the *Social Explorer* database. In order to create the 2007 estimates, *Social Explorer* used 2006-2008 census data, then tracked changes between 2000 and 2007 and propagated the changes down to the census tract level. As a check for completeness, I matched the Social Explorer 2007 estimates with the estimates produced by the U.S. Census Bureau for the years 2005-2009, and found a near perfect match of the same numbers.

[47] Initially, the number of downtown business establishments was identified as a dependent variable measure, but was ultimately eliminated due to unavailable data at the census tract level.

varied and stable tax base (Lambert, 2006; Handy, Boarnet, et al., 2002). The commingling of residential units with business facilities promulgated the sense of community (Lloyd, Clark, 2000; Robertson, 1997). Therefore, the built environment is represented by the percent changes in the total number of residential units, as well as the occupied housing units; all within the downtown, measured in the years 2000 and 2007.

In addition to the physical buildings, human capital is noted as another determinant of a revitalized downtown, with increases in the downtown population (Sohmer, Lang, 2001). As downtowns evolved from being the core of the manufacturing industry to a consumption core, there came a shift in the demographics of the downtown population. These human capital demographics are represented by the percent changes in the following measures between the years 2000 and 2007: education levels, employees in the arts, entertainment and recreation industries, and the median household income of downtowners (Markusen, Schrock, Barber, 2004; Turner, 2002).

These six dependent variable measures are each regressed on five independent variables[48], which are fully described in a subsequent section.

[48] The five independent variables of the presence of a performing arts center, population density, population ages 18 to 64, downtowns located on the coasts versus elsewhere, and the level of arts support in each metropolitan area, plus the original value of each downtown revitalization characteristic (number of downtown residential establishments, downtown population with a Bachelor's degree or higher, median household income, number of downtown occupied housing units, downtown population employed in the arts and recreation industry, and downtown population; all from the year 2000) are tested for their levels of influence on the six dependent variable measures representing downtown revitalization.

Calculation for downtown revitalization dependent variables

The dependent variables are based upon changes observed between two different points in time (2000 and 2007), the span of years during which the 122 PACs included in this study opened. Percent changes in the values of these revitalization measures, computed as the difference in those values between 2007 and 2000, are calculated for each downtown and used as the dependent variable in six regression equations[49]. Multiple regressions are then used to test the first hypothesis of downtown revitalization, in two ways. First, separate multiple regressions are run for each of the six dependent variable measures, making it possible to note the relationship level each independent variable might have upon each of the different dependent variable measures. Second, a multiple regression is run using a single dependent variable, computed as an overall average of the percentage values of the other dependent variable measures, in order to determine how well the independent variables – including the one indicating the presence or absence of a PAC – are able to account for observed values of this overall index-type of variable.

Independent variables – influencing downtown revitalization

The first hypothesis – that downtowns will experience a revitalization effect in association with the presence of a PAC – is tested by utilizing four independent variables: geographic region, population density, age range of downtown residents, and level of arts

[49] An additional independent variable – the actual value of each downtown revitalization characteristic in the starting year 2000 – is added to each separate regression. Each regression in the first hypothesis uses six independent variables (five independent variables plus the actual value of the appropriate downtown revitalization characteristic in the year 2000); and the regression using the Index of six dependent variable measures uses eleven independent variables (five independent variables plus the actual values of all six downtown revitalization characteristics). Inserting these extra independent variables shows the relationship between the size of the actual baseline values and the percentage changes in the corresponding dependent variable measures.

support[50]. Based upon the study's literature review, these independent variables appear to be most likely to be related to decisions communities might make regarding the opening of a PAC, although none of the previous studies identified all four characteristics together. An additional, dichotomous variable is created and coded as a dummy variable to indicate the presence or absence of a performing arts center in each downtown, to help determine the relationship, if any, of a PAC upon the level of downtown revitalization or lack thereof in each downtown studied.

Preliminary tests – untransformed versus transformed variables

Because the geographic perimeters of each downtown vary greatly, the scalable independent variables – downtowners ages 18 to 64, and the average dollars spent on the arts – are calculated per square miles of each downtown area, in order to provide a fairer comparison among cases[51]. Preliminary tests for normal distribution are then run on the values of each of the scalable independent variables and dependent variable measures. Nearly all of the independent variables were positively skewed and leptokurtic. Subsequent transformations using either a Base 10 logarithm or cube root calculation reduced the level of skewness or kurtosis[52]. Conversely, the dependent variable measures show a more normal distribution, and all have been left in their untransformed states. Additional preliminary tests for correlation (correlation matrix and scatterplots) are administered to measure the degree of relationship between the independent and

[50] Total Labor Force and Manufacturing Labor Force were also identified as independent variables, as noted from previous studies (Lloyd, Clark, 2001). These independent variables revealed high variance inflation factor scores in the multicollinearity diagnostics, and were therefore eliminated. Two remaining independent variables – Downtowners between the ages of 18 to 64, and Population Density – still serve as representatives of sociological independent variables for the regressions.
[51] Population density is already based upon population per square mile.
[52] Bryk, Raudenbush (1988), p. 401.

dependent variables. A test for multicollinearity among the independent variables suggested a lack of multicollinearity, with variance inflation factor scores between 1.022 and 1.822. An independent samples t-test and a compare means test checked for endogeneity issues, by comparing the dependent variables of the two populations of downtowns with, and without the presence of a performing arts center. The actual values of the dependent variables, as well as the percent changes over time (between 2000 and 2007) are compared to see if these results of vitalization were already present before the performing arts center made its entrance into the downtown. The full results of the descriptive statistics, histograms, correlations, scatterplots, multicollinearity, compare means, and independent samples t-test are found in Tables 1 - 5 and Figures 5 – 7 in Appendix A. Table A below provides a summary of the independent variables, as well as the dependent variable measures used for the percentage change in levels of downtown revitalization activity between the years 2000 and 2007.

Table A – Downtown Revitalization variables

	VARIABLES	DEFINITION	VALUE	COMPUTATION
INDEPENDENT VARIABLES	Presence of a PAC	Presence of a PAC located in each downtown	Presence or absence (dichotomous)	Dummy variable: Presence of a PAC =1; No PAC = 0
	Population density (log $_{10}$)	Number of people per square mile in downtown in 2000.	Pop. density per square mile (Log 10)	Total downtown population divided by number of square miles within the downtown boundaries in 2000; with Log10 calculation.
	Age of downtowners	Population ages 18 – 64 in downtown in 2000.	Ages 18 to 64 per square miles.	Population ages 18 to 64 in downtown in 2000 (untransformed)
	Arts support (0.333)	Average dollar spent on the arts in 2000, in each community.	Average dollar spent or donated to the arts (cube root)	Sum of total revenues from each 501c3 arts org. in every community in 2000, divided by the number of 501c3 arts orgs in each community, with cube root calculation.
	Geographic region	Location of PAC either on the coasts (upper northeast or California) versus anywhere else in the United States (no coasts)	Coasts or No Coasts (dichotomous)	Dummy variable: Coasts = 1; No Coasts = 0.
	With each regression, the original value of the appropriate downtown revitalization characteristic in the year 2000 was also included as an additional independent variable, in order to compensate for the use of percentage changes as dependent variables.			

DEPENDENT VARIABLE MEASURES	Residential estabs	Downtown housing units, occupied, unoccupied, rented, owned.	Total number of downtown units	Percent change in the number of downtown units between 2000 & 2007.
	Education level	Bachelor's degree or higher in downtown population	Downtown pop. with Bach. +	Percent change of downtown pop. with bachelor degrees+ between 2000 & 2007.
	Median household income	Median household income of downtown population	Inflation-adjusted dollars 2007	Percent change in downtown median household income (2007 inflation-adjusted dollars) between 2000 & 2007.
	Residential housing	Occupied downtown housing units	Total number of occupied units	Percent change in number of downtown occupied units between 2000 & 2007.
	Arts & recreation employees	Downtown employees in entertainment & rec. industry	Total number of employees	Percent change in downtown entertainment & rec. employees between 2000 & 2007.
	Population	Number of people in downtown.	Downtown population	Percent change in downtown pop. Between 2000 & 2007.

Figure 3 shows the final regression equation for downtown revitalization:

Figure 3. Regression equation – downtown revitalization

$$Y = X + C_1(\log_{10}D) + C_2(A) + C_3(G) + C_4(S^{0.333}) + C_5(P)$$

Y =	Downtown revitalization	A =	Age of downtowners 18 to 64
X =	Constant	G =	Geographic region of coasts or no coasts
C =	Coefficients	S =	Average arts support $^{(0.333)}$
D =	Population density ($\log_{10}$)	P =	Presence or absence of a performing arts center

Selecting performing arts centers and their communities – Hypothesis 2

Selecting performing arts centers

The same criteria used to define a PAC in Hypothesis 1 – Downtown Revitalization – is also applied to PACs studied for Hypothesis 2 – Overall PAC Health. Here, the PACs studied are gleaned from two sources – the membership directory of performing arts presenters (APAP, 2009), and an internet search for performing arts centers using the search words, *performing arts center*, and *theater*[53]. Each PAC that popped up from these two sources was carefully screened to match the definition used in this research, checked

[53] Although the word "theater" was used as an internet search word to identify existing performing arts centers, those theaters that popped up as a result of the search were further screened by using the criteria of this research definition of a performing arts center. Some theaters did not ultimately qualify for the population studied.

for the year it opened[54], to ensure that the PAC population represents only those that opened before the year 2000, then checked for its nonprofit 501c3 status through the *Guidestar.org* database, as well as for the presence of its I-990 Form for the years 2000 and 2007. PACs missing any of these data were eliminated from the study. The final population represents 129 PACs for study.

Selecting PAC communities

For Hypothesis 2 – Overall PAC Health – the PAC's metropolitan area in the year 2000 is used as the geographic perimeter for each community[55]. Unlike Hypothesis 1 – Downtown Revitalization – where only the smaller downtown core is measured, the larger metropolitan area is an appropriate measure for the second hypothesis, because attendance at a PAC does not come solely from those who reside within the downtown area.

[54] PACs that were part of a restored, historic building were checked for the most recent year in which they reopened their doors to the general public.

[55] The U.S. Office of Management and Budget (OMB) divides metropolitan areas into subdivisions ranging from combined statistical areas that contain an aggregate of metropolitan and micropolitan statistical areas linked together, to unlinked metropolitan areas (core based statistical areas), as well as smaller, individual areas such as the metropolitan statistical areas and the micropolitan statistical areas. For the purpose of this research, subdivisions of the larger combined statistical areas are used. While performing arts centers attract audiences from geographic areas well beyond the local community, the core audience mostly comes from metropolitan divisions that are smaller than the larger combined, or core based statistical areas. This is particularly true with PACs located in smaller communities. The 129 PAC communities studied here represent 17 communities with populations under 100,000. With the smallest communities, the principal cities and micropolitan statistical areas were used. Although the definitions of metropolitan areas have changed over time, this research is based upon the OMB's definitions from the year 2000.

Variables – Hypothesis 2

Dependent variable – Overall PAC Health

The dependent variable for overall PAC health – the percent change in net revenue of a PAC over time[56] – is selected from among the perspectives of earlier studies describing the overall health of an organization[57]. The argument for using the percent change in net revenue over time is appropriate, due to the need for working capital. In some years, nonprofit PACs can live a hand-to-mouth existence. While having a growing endowment is extremely valuable in the long run, it takes time to build an endowment that provides enough of a distribution from the earnings. In the meantime, the lean financial years can push a performing arts center to seek available working capital just to keep the doors open. Here, the dependent variable is determined by obtaining the net revenue amount in the year 2000 as well as the year 2007, and computing the percent change between the two years. Several variations of net revenue change between the two years would either show a net increase or a net loss over time. For example, PACs showing a net gain in both 2000 and 2007 could reveal a loss or gain over the seven-year time period, depending on whether the gain in 2000 was less than or greater than the gain in 2007. A net gain in 2000 and a net loss in 2007 would reveal an overall net loss over time. Alternatively, an overall net loss would occur, if in the year 2007, the net loss amount was larger than the net loss amount in 2000. Conversely, a larger net loss in 2000 than the smaller net loss in 2007 would reveal an overall net gain over time; and a net loss in 2000

[56] For this research, the dependent variable of net revenue over time covers the amount of profit or loss of the performing arts center over time.

[57] Sowa, Selden, et al. (2004); Frank (1988); and Geroski, Mata, Portugal (2007) linked organizational effectiveness to the amount of external resources organizations could acquire in order to survive. Scott (2003) described the liability and vulnerability of a young organization, as opposed to an older, more stable organization. Financial health, especially the need for working capital was viewed as a critical component of nonprofit health (Baumol & Bowen, 1966; Tuckman & Chang, 1991).

and a net gain in 2007 would reveal an overall net gain over time. Ultimately, the final dependent variable would reveal whether a performing arts center's net revenue increased or decreased over time, between the years 2000 and 2007. If the PAC net positive from 2000 to 2007, the organization would be deemed healthier than if the PAC experienced a loss over the same time period, even if both years result in net losses. At least, the resulting change in net revenue would be moving in a positive direction.

Calculation for Overall PAC Health dependent variable

The dependent variable is based upon the change of PAC net revenue observed between two different points in time (2000 and 2007). A multiple linear regression notes the relationship each independent variable has on the percent change of net revenue.

Independent variables – Overall PAC Health

Independent variables for the second hypothesis on overall PAC health are selected from socioeconomic characteristics of each community, coupled with the geographic location and production capacity of each PAC. Nine independent variables are tested for their relationship with the overall health of a PAC: population, education levels, median household income, and employees in the arts, hotels and restaurant industries, all within the metropolitan area of the PAC; geographic location of the PAC; the size of the PAC, as expressed by the number of seats in the theater(s)[58] within the PAC, the age of the PAC, and the percent of program revenue and contributed revenue of the PAC.

[58] The total number of seats within the PAC, whether the PAC was a multi-theater or single-theater venue.

Socioeconomic variables test for the strength of a relationship, if any, between characteristics that may play a role in how the community participated in programs at the PAC, and whether these characteristics enable the PAC to be sustained operationally over time[59].

The population of the metropolitan area in which the PAC is located may affect the PAC's audience size. Communities with larger populations could offer a PAC more ticket buyers. If this is true, then a positive relationship between population and overall PAC health might occur. However, the opposite might be the case, where there would be a multitude of community activities competing with the PAC, resulting in reduced demand for PAC programs and therefore, less gain in net revenue.

Another demographic variable is the level of education in the community. Previous studies noted the available downtown entertainment and amenities for well-educated workers[60], and other cultural studies noted education strongly associated with arts attendance[61]. It is expected that higher levels of education in the community will be associated with greater attendance at a PAC performance, and subsequently increased net revenues.

[59] An additional independent variable – the actual value of PAC net revenue in the year 2000 – is added to the regression as a baseline value, in order to observe the percentage change in the corresponding dependent variable. All things being equal, larger baseline values would likely produce a smaller percentage gain in the dependent variable, and smaller baseline values might produce a larger percentage gain. Alternatively, corresponding positive relationships between the change in PAC net revenues from their initial baseline values might reveal potential endogeneity issues.
[60] Birch (2005); Moulton (1999).
[61] NEA (2009); DiMaggio & Mukhtar (2004); Gray (2003).

Median household income of the metropolitan area is identified as an economic input, as the higher median household income levels might provide enough disposable income to purchase tickets and/or make charitable donations to a performing arts center. Similar to community population size, however, an increase in median household income could also mean that disposable income might be spent on alternative community activities other than PAC programs.

The presence of employees in the arts, hotel, and restaurant industries could signal ancillary activities often associated with performances at a PAC. With an increase in building cultural centers (Strom, 2002) came arts workers to operate the centers. Tourists and business travelers visiting a city would have an opportunity to attend PAC performances near their hotels; and the presence of restaurants and their workers would be able to serve patrons cuisine before or after a performance at the local PAC. These variables are tested for a positive relationship with a PAC's net revenue. An alternative argument, however, may be that a community with a lot of employees in the arts, hotels, and restaurant industries signals increased activities elsewhere in the community.

The geographic location of a PAC is tested for its association with the PAC's net revenue. Studies noted that PACs situated themselves on the east and west coasts in order to take advantage of where performing artists resided[62], therefore potentially reducing the travel expenses to bring the artist to the PAC, and subsequently decreasing the expenses in the PAC operating budget.

[62] Strom, 2002; Heilbrun, 1996.

Finally, characteristics of the PAC itself are tested for their influence on the change of its net revenue over time. Higher seat counts in a PAC theater(s) presumably allow for more ticket buyers and therefore, increased program revenue. The age of a PAC is tested for whether an older PAC is able to weather and survive changing economic influences over time, assuming that an older PAC is also wiser in its ability to find ways to stay afloat operationally.

Two sources of PAC revenue – program revenue and contributed revenue – are tested for their relationship with net revenue. Program revenue represents the revenue earned through demand, where the public buys tickets to shows, and community arts groups rent the facility. Contributed revenue represents grants and charitable donations from foundations, government, or individual donors to the PAC.

Preliminary tests – untransformed values versus transformed values

All independent variables for except the population of the metropolitan area are first calculated to represent per capita values, in order to better even the playing field among communities. The per capita calculation is chosen to represent the audiences from the metropolitan community in which the performing arts center is located. Preliminary tests for normality are then run on the values of each of the independent variables and the dependent variable, resulting in the transformation of some of the independent variables, in order to arrive at a better fit for the regression. The dependent variable remains in its original scale.

Initial findings from a frequencies test revealed positive skewness in the socioeconomic independent variables (population of the metropolitan area, education, median household income, arts, hotels and restaurant employees) as well as the number of seats in the PAC; and some leptokurtosis in nearly every independent variable, with the exception of the metropolitan population. Base 10 logarithm calculations transformed the variables of median household income, theater seats, and program revenue, to make the effects more interpretable. In the case of the independent variable of education, a cube root calculation transformed the variable to bring more of the cases into a pattern of normal distribution. Table 7 in Appendix B shows the descriptive statistics of the untransformed variables, compared with the descriptive statistics of the transformed variables. Accompanying histograms in Figure 8, Appendix B provide visual assistance in determining normal distribution.

Additional preliminary tests – correlation matrix and scatterplots – measured the degree of association between the independent variables with the dependent variable; as well as between the independent variables. A subsequent test for multicollinearity revealed variance inflation factor scores between 1.040 and 3.196; scores that did not suggest the presence of multicollinearity. Tables 8 and 9, and Figure 9, in Appendix B show the correlations, scatterplots, and multicollinearity test results.

The table below provides a summary of the independent and dependent variables used to test the percent changes in the net revenue of the PACs between the years 2000 and 2007.

Table B. Overall PAC Health variables

VARIABLES		DEFINITION	VALUE	COMPUTATION
INDEPENDENT VARIABLES	Population	Number of people in the metro area	Number of people in the metro area	Total metro population in 2000
	Education (0.333)	Percent of people in the metro area with a Bachelor's degree or higher	Percent of total metro population	Cube root of the percent value of total population in the metro area in 2000.
	Med. household income ($\log_{10}$)	Median household income per capita in the MSA	Income level per capita in MSA	Base 10 logarithm of the dollars per total MSA population in the year 2000.
	Arts Hotels Restaurant workers	Employees in the arts, hotels and restaurant industries in the metro area	Percent of total metro area population	Percent of total population in the metro area in the year 2000.
	Geographic region	Location of the PAC either in the upper east coast or California versus everywhere else in the United States	Coasts or no coasts – dichotomous	PACs located on the upper east coast or in California are coded 1 for dummy variable and have a value of 0 when located elsewhere.
	PAC age	Age of the PAC from the year it opened its doors to the general public, to the year 2000	Number of years old	Number of years from the PAC opening to the year 2000.
	Seats (Log_{10})	Number of seats in a PAC theater(s)	Number of seats in the PAC	Base 10 logarithm of the number of seats in the PAC theater(s)
	Program revenue (Log_{10})	Program revenue as percent of total revenue of a PAC	Percent of total revenue of a PAC	Base 10 logarithm of Line 2 in I-990 Form – Program Service Revenue, as percent of Total Revenue in 2000.
	Contributed revenue	Contributed revenue as percent of total revenue of a PAC	Percent of total revenue of a PAC	Percent of total revenue of a PAC in the year 2000.
	Net revenue	Revenue minus expenses of a PAC	Net revenue of PAC in the year 2000	Actual value of PAC net revenue in the year 2000.
DV	Change in net revenue	Percent change in net revenue of a PAC between 2000 and 2007	Percent change of net revenue of a PAC	Percent change of net revenue of a PAC from 2000 to 2007.

Figure 4 shows the transformation of some of the independent variables, coupled with other untransformed independent variables in the regression equation:

Figure 4. Regression equation – overall PAC health

$$Y = X + C_1(P) + C_2(E^{0.333}) + C_3(\log_{10}M + C_4(H) + C_5(G) + C_6(A) + C_7(\log_{10}S) + C8(\log_{10}P) + C_9(c)$$

Y =	Overall PAC health (change in net revenue)	H =	Arts, hotels, restaurants
X =	Constant	G =	Geographic region of coasts or no coasts
C =	Coefficients	A =	PAC age
P =	Population of metropolitan area	S =	Number of seats in the PAC ($\log_{10}$)
E =	Education level $^{(0.333)}$	p =	Program revenue ($\log_{10}$)
M =	Median household income $\log_{10}$	c =	Contributed revenue

CHAPTER FOUR

ANALYSIS

The two-fold purpose of this research is to investigate whether the relationship between the socioeconomic characteristics of downtowns with a performing arts center show greater increases over a common, seven-year period of time in revitalization levels than in downtowns that did not have a PAC; and whether healthier PACs are related to an increase in the PAC's size, age, to an increase in the relative amounts of revenue they receive from different sources, and to higher levels of socioeconomic characteristics of the PAC's community in the first year of the seven-year period.

Hypothesis 1 – Downtown Revitalization

Table C presents the basic regression results. Overall, the percent of variance, as measured by the R^2 ranged from 4.9% (change in arts and recreation employees) to 14.8% (change in residential establishments). The five independent variables – coasts or no coasts, population density, downtowners ages 18 to 64, arts support, and the presence or absence of a PAC – are displayed in this model[63].

[63] The actual, untransformed value of each downtown revitalization characteristic from the year 2000 was also inserted, in order to provide a better prediction.

Table C. DOWNTOWN REVITALIZATION: Regressions

	ResEstabs 2000-2007	Education 2000-2007	MedHHInc 2000-2007	ArtsRec 2000-2007	OccRes 2000-2007	Population 2000-2007	Index 2000-2007
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Presence of a PAC	-.064 (1.24)	-.165 (5.57) **	.171 (2.05) *	-.012 (7.57)	-.036 (1.41)	.023 (1.45)	-.083 (12.68)
Population density	-.280 (1.50) ***	-.058 (6.69)	-.052 (2.36)	-.054 (9.13)	-.245 (1.69) **	-.360 (1.70) ** *	-.155 (14.36)
Ages 18-64	-.119 (.00)	.077 (.00)	.090 (.00)	.270 (.00) *	-.196 (.00)	-.487 (.00)	-.305 (.01)
Coasts or no coasts	-.263 (1.48) ***	.172 (6.52) *	.227 (2.32) **	.115 (8.89)	-.163 (1.68) *	-.173 (1.73) *	.091 (15.09)
Arts support	-.069 (.02)	-.03 (.09)	-.159 (.03) *	-.044 (.122)	-.093 (.02)	-.078 (.02)	-.047 (.204)
ResEstabs in 2000	.331 (.00) *						-1.44 (.04)
Bachelor's degree or higher in 2000		-.171 (.00)					.139 (.01)
Median HH income in 2000			-.026 (.00)				-.133 (.00)
ArtsRec employees in 2000				-.316 (.10) **			-.322 (.19) *
Occupied units in 2000					.313 (.00)		1.571 (.05)
Population in 2000						.787 (.00) **	.453 (.01)
R^2 *(%)*	14.8	7.6	10.0	4.9	10.7	12.2	10.1
F	6.086 ***	2.908 **	3.899 **	1.807	4.202 **	4.877 ***	2.101 *

Numbers in parentheses are standard errors. *p ≤ .05; **p ≤ .01; ***p ≤ .001

Each of the six dependent variables (percent change in the number of downtown residential establishments, downtowners with a Bachelor's degree or higher, median household income, arts and recreation employees, occupied residential units and population, as well as the index of the average of the six dependent variable measure values), all within the downtown area between 2000 and 2007, were regressed on the five independent variables in the model. Each of the different regressions for the dependent variable measures accounted for a significant amount of the variation in that dependent

variable, with the exception of the percent change in arts and recreation employees[64]. The F scores showing significant levels ranged from slightly above 2 (2.101) with the Index of six dependent variable measures, to slightly above 6 (6.086), with the percent change in the number of residential establishments. While the ratio between the regression and the residual of the mean square scores was nearly three times or greater in the dependent variable measures of percent change in residential establishments, population with a Bachelor's degree or higher, median household income, occupied residential units, and downtown population, the dependent variable measure of percent change in arts and recreation employees approached, but did not register a level of significance. Additionally, the dependent variable of the overall index of the six dependent variable measures showed a level of significance; however, the F score was lower, revealing a borderline relationship between the independent and dependent variables. Among the population of communities studied, with or without the presence of a PAC, the communities varied greatly in so many characteristics. These communities – both large and small – with a range of very high and very low values, may have offset each other, thus contributing to the low F score of a 2-to-1 ratio between the regression and residual scores of the mean square. At the same time, because the population represented 218 cases, it may have served as a moderately large enough sample size to show a level of significance.

[64] The significance level of $p \leq .05$ was used in these analyses. Although not accounted for here, some coefficients – ages 18-64 with population change; population density with the Index of 6 dependent variable measures, as well as the model for the dependent variable measure of the percent change in arts and recreation employees were significant at $p \leq .10$.

The presence of a PAC showed significance with two dependent variable measures: the percent change of the downtown population with a Bachelor's degree or higher, and the percent change of median household income.

With the exception of the dependent variable measure of percent change of arts and recreation employees, based on the beta weights, the independent variable of coasts or no coasts showed a level of significance with each of the remaining five dependent variable measures. Population density registered as significant with the dependent variables of percent change in residential establishments, occupied housing units, and downtown population. An additional independent variable – arts support – registered as significant in association with the dependent variable measure of percent change in median household income. The independent variable of downtowners ages 18 to 64 showed a level of significance with the dependent variable measure of percent change in arts and recreation employees; however, as noted earlier, the ANOVA model of arts and recreation employees was not significant at the $p \leq .05$ level. Finally, the coefficients table of the index of six dependent variable measures showed no independent variables at a significant level.

In summary, each dependent variable measure for downtown revitalization was best explained by two or three-out-of-five independent variables. The most important independent variables were the presence of a PAC, coasts or no coasts, population density, and arts support. The independent variable of downtowners ages 18 to 64 showed a level of significance with the dependent variable measure of the percent change

in arts and recreation employees, but it existed within a model that was not significant. Finally, the dependent variable of the Index of six dependent variable measures showed a significant F-value; however, there were no significant coefficients associated with any of the independent variables at the $p \leq .05$ level.

As a check for completeness, regressions were also run on all 218 downtowns, excluding the independent variable of the presence of a PAC, to compare vitality results of these downtowns with, and without the introduction of the PAC. A comparison of the regression results shows that overall, no clear pattern emerged when comparing the regressions with and without the independent variable of the presence of a PAC. Those regressions that included the extra PAC independent variable resulted in greater variance, as revealed by the increased R^2 and F values in five of the seven dependent variable measures. A focus on the independent variable of the presence of a PAC revealed negative beta values for five of the seven dependent variable measures (Changes between 2000-2007 in residential establishments, education, arts and recreation employees, occupied housing units, and the index of six dependent variable measures), suggesting that downtowns with a PAC tended to have lower gains in these revitalization characteristics over time, than downtowns with no PAC. (See Table 7, Appendix A).

Comparing means for endogeneity

Table Da below examined the means of each dependent variable measure in downtowns with no PAC and compared the same means in downtowns with a PAC, in order to investigate the level of revitalization before and after the entrance of a PAC. The means

of the actual values of each dependent variable measure were compared, as well as the means of the percentage changes between 2000 and 2007. Across the board, in both 2000 and 2007, the means of each dependent variable measure in downtowns with the presence of a PAC were between 16% and 138% higher than the same means in downtowns without a PAC. Alternatively, in Table Db, the mean percentage changes between the years 2000 and 2007 showed greater gains in downtowns without a PAC than in downtowns with a PAC, with the exception of the dependent variable measure of downtown population, which showed the same level of percentage increase in both downtowns. A more detailed version of these Compare Means tables can be found in Appendix A (labeled as Tables 4a and 4b, and Figure 5)

Table Da. DOWNTOWN REVITALIZATION: Compare means – actual values in 2000 and 2007

	Downtowns with no PAC (*n=96)*		Downtowns with a PAC *(n=122)*	
	2000 mean	2007 mean	2000 mean	2007 mean
Residential establishments	1934.1	2120.7	2827.9	3008.9
Bachelor's degree or higher	507.2	630.4	1208.2	1371.5
Median household income	$31,132	$29,533	$36,004	$35,837
Arts & recreation employees	39.7	48.8	61.1	73.5
Occupied units	1764.5	1836.6	2529.7	2585.9
Population	4393.2	4601.2	5734.7	5884.2
Index of 6 dependent variables	36109.3	34936.2	43586.6	43857.8

Table Db. DOWNTOWN REVITALIZATION: Compare means – percentage change 2000-2007

	Downtowns with no PAC *(n=96)*	Downtowns with a PAC *(n=122)*
	2000-2007	2000-2007
Residential establishments	7.1%	6.6%
Bachelor's degree or higher	32.7%	17.1%
Median household income	-8.0%	-3.7%
Arts & recreation employees	27.7%	23.0%
Occupied units	2.4%	2.3%
Population	2.3%	2.3%
Index of 6 dependent variables	62.3%	45.6%

Hypothesis 2 – Overall PAC health

Table E below presents the regression results of nine characteristics within the community and its performing arts center, with the overall health of the PAC (percent change in the PAC's net revenue between 2000 and 2007). The R^2 shows that 25% of the variance was explained by the independent variables in this model. The model revealed a significant F test result, with a ratio between the regression and residual of the mean square of nearly four times in the dependent variable of percent change in the PAC's net revenue between 2000 and 2007. Based on the beta weights, five of the independent variables showed significance: population of the metropolitan area, age of the performing arts center, education level, arts, hotel, and food employees, and contributed revenue of the performing arts center[65, 66].

[65] The significance level of $p \leq .05$ was used in these analyses. Although not accounted for here, the independent variables of coasts or no coasts, and median household income were significant at $p \leq .10$.

[66] The original value of the dependent variable – PAC net revenue – in the year 2000 was inserted as an additional independent variable in order to provide a better prediction. A check for completeness tested the same regression results without inserting the extra independent variable, revealing nearly the exact same results ($F = 4.408^{***}$; population of the metropolitan area = $-.441(.00)^{***}$; Coasts or no coasts = -.155(3.28); Age of the PAC = $.206\ (1.0)^{*;}$ Education level$^{0.333}$ = $.526\ (4.85)^{***}$; Median household income $\log_{10}$= -.251(4.38); Arts, hotels, & food employees = $-.283(.63)^{*}$; Number of seats in a PAC $\log_{10}$ = -.147(5.12); Program revenue of a PAC $\log_{10}$ = -.150(10.13); Contributed revenue of a PAC = $-.437(.12)^{**}$.

Table E. OVERALL PAC HEALTH: Regression

	Dependent variable % change net revenue 2000-2007		
Population of the metropolitan area	-.439	***	(.00)
Coasts or no coasts	-.156		(3.29)
Age of the PAC	.206	*	(.10)
Education level $^{0.333}$	.526	***	(4.87)
Median household income $\log_{10}$	-.250		(4.41)
Arts, hotels, & food employees	-.283	*	(.63)
Number of seats in a PAC $\log_{10}$	-.145		(5.20)
Program revenue of a PAC $\log_{10}$	-.153		(10.39)
Contributed revenue of a PAC	-.439	**	(.12)
PAC net revenue in the year 2000 –actual value	*-.011*		*.902*
R^2 *(%)*	*25.0*		
F	*3.936*	***	

Numbers in parentheses are standard errors. *p ≤ .05; **p ≤ .01; ***p ≤ .001

This chapter continued the purpose of this research through an examination of the selected independent variables using regression analyses with downtown revitalization, and with the overall health of a performing arts center. The next chapter will discuss the interpretation of the data.

CHAPTER FIVE

DISCUSSION

This research was based on two separate but related questions about the interaction between the level of vitality in a downtown area with or without the presence of a performing arts center; and in turn, whether there was a relationship between the characteristics of a performing arts center's surrounding community and the overall health of its PAC. I hypothesized that increases in socioeconomic attributes of downtowns with a performing arts center would have a strong and positive association with all revitalization characteristics – residential establishments, population with a Bachelor's degree or higher, median household income, arts and recreation employees, occupied housing, and population – over the common, seven-year time period, than in downtowns without a performing arts center. Additionally, I hypothesized that increases in the socioeconomic characteristics of communities with a PAC, as well as some attributes of the PAC itself would have a positive association with the level of PAC net revenues over time, resulting in healthier performing arts centers. Based upon the findings of this study, however, the presence of a PAC, while significantly correlated with some downtown revitalization characteristics, did not show a significant relationship with all characteristics. Similarly, with overall PAC health, some, but not all of the selected community characteristics and PAC attributes showed a significant correlation with overall PAC health. Furthermore, these significant explanatory variables resulted in *decreases* of several characteristics, both in downtown revitalization and overall PAC health, instead of increases, as originally hypothesized.

There are several possible reasons for the discrepant findings. The next section examines a variety of interpretations of the multiple linear regression results on downtown revitalization in their current form, to see whether any of the findings in this analysis support or refute the hypothesis. A discussion follows, with subsequent analyses of other potential characteristics that may further clarify some of the previous ambiguous findings.

HYPOTHESIS 1 – DOWNTOWN REVITALIZATION

The presence of a PAC exhibited significant relationships with changes in both education levels and median household income between 2000 and 2007. Both of these characteristics have had longstanding, positive relationships with the arts, where formal education and income levels of adults served as predictors of arts attendance and participation over several decades[67]. Here, however, the association with education levels was negative, suggesting that more people living in close proximity to the PAC represented a broader range of education levels than only those with a Bachelor's degree or higher. The decrease in education level may also be explained by other findings. In the *2008 Survey of public participation in the arts* (NEA, 2009), even though attendance at live performing arts activities mostly represented groups with higher education levels, attendance between 2000 and 2008 still declined by more than one-third for people with a graduate school education[68]. Birch (2005) noted an increase in the educated downtown population between 1970 and 2000. But it may be that the time period used for this PAC research (2000-2007) showed that the earlier increase in educated residents reached a

[67]NEA (2012, 2011, 2008, 2002).
[68] NEA (2009, pp. 22-25).

plateau and subsequently declined by the early 2000s. Finally, it is possible that the downtown boundaries used in this research – the use of one or several census tracts – were smaller than earlier studies that discussed the revitalization of the urban core, but did not delineate specific downtown boundaries. If this is the case, the population of highly educated residents may still have increased in association with the presence of a performing arts center, although the increase would not have occurred solely within the same census tract that contained the PAC.

The presence of a PAC had a positive association with the increase in median household income in the downtown area over time. Assuming that an increase in median household income indicates higher incomes in the top half of the community, this finding echoes the descriptions in earlier studies of the new urban marketplace. Empty nesters living in downtown condominiums had more disposable income (Birch, 2005). Emphasis on technology and information increased the demand for workers with higher incomes[69]. Businesses drawn back to the revitalized downtown were replete with specialists (e.g., bankers, lawyers, arts and media producers) who utilized skilled communications in their work, and therefore encouraged a rise in income[70]. Glaeser and Shapiro (2003) noted the presence of well-educated workers with higher earning power, who sought out leisure and entertainment activities after work.

In addition to the presence of a PAC, other characteristics, separate from the PAC were also significantly correlated with the level of downtown revitalization through changes in residential establishments, occupied housing, and downtown population between 2000

[69] Kunstler, 1994.
[70] Voith, Wachter, 2009;Markusen, 2007; Markusen, Schrock, Barbour, 2004; Frieden, Sagalyn, 1990.

and 2007. Each of these three ANOVAs was significant, and within each regression, the independent variables of population density, and the geographic location of the downtowns (i.e., whether a downtown was located on the east or west coasts versus elsewhere in the United States) made a significant impact. The two independent variables of population density and coasts or no coasts, however, were *negatively* related to each of these three dependent variable measures: Downtowns, especially those located on the east and west coasts, and those with higher levels of population density showed an overall *decrease* in residential establishments, occupied residences, and downtown population between 2000 and 2007.

With the independent variable of population density appearing to be negatively related to the decrease of residential establishments, one interpretation could be that the demand for downtown housing exceeded the number of available units occurred before the time period used in this study (2000-2007). Some consolidation of downtown residential establishments from small, multi-family apartments to larger, single-dwelling homes may have also changed the definition and count of downtown residential establishments, thus appearing as a decrease. Another, more nuanced interpretation might involve the geographic boundaries which were used for this research. It is feasible that downtowns grew out of their original boundaries that were identified in the year 2000, yet those original boundaries may not have officially changed to accommodate the enlarged area by the year 2007. Similarly, the number of downtown occupied residences could have reached capacity as density increased. An alternative interpretation could also result from the empty nesters which were attracted to downtown living (Birch, 2005; Moulton,

1999). Empty nesters could reside in the suburbs in one community during the week, and live in their downtown condos on weekends, in order to participate in the night life and weekend entertainment activities. These multi-residential lifestyles could show up in a regression as an increase in downtown population without counting the occupied unit as a permanent residence, thus negatively affecting the association with downtown occupied residences. Relative to the dependent variable measure of downtown population, there could have been a negative relationship with the increase in population density, due to reaching capacity of the downtown perimeters.

The independent variable of coasts or no coasts was negatively related to each of these three dependent variables. One possible interpretation from this finding might be that the number of residential establishments in coastal downtowns – occupied or unoccupied – may have held steady in numbers between 2000 and 2007 while downtowns located elsewhere increased their residences. Another explanation may simply be related to the number of cases in downtowns on the coasts (n = 70; 32%) versus downtowns located elsewhere (n = 148; 68%), with twice as many non-coastal cases in the population as there were coastal downtowns. A compare means test, using the dichotomous independent variable of coasts or no coasts showed coastal downtowns with a lower mean gain in residential establishments (coastal: 3.0% vs. non-coastal: 8.6%), occupied residencies (coastal: -0.8% vs. non-coastal: 3.8%), and population (coastal: 0.2% vs. non-coastal: 3.3%). Table 6 in Appendix A shows a compare means test on all of the dependent variable measures, using coasts or no coasts as the independent variable. With

the downtown population measure, more people who live on the coasts may live in areas of the community other than downtown.

Conversely, the impact of the independent variable of coasts or no coasts on the direction of education levels, and the change in median household income between 2000-2007 was positive. Based on the findings, it appears that the seven years studied saw an increase in educated residents living in coastal downtowns. Similarly, an increase in the median household income between 2000 and 2007 was positively associated with coastal downtowns vs. non-coastal downtowns. With the overall index of six dependent variable measures combined, those downtowns located on the coasts showed a greater mean increase in the revitalization measures between 2000 and 2007 than downtowns located elsewhere. These results may be ambiguous, as one of the two highest changes – the dependent variable measure of arts and recreation employees – was not part of a significant regression model; and the independent variable of coasts or no coasts was also not significant within the regression model of the Index of six dependent variable measures.

Arts support from the metropolitan community was significantly and negatively associated with downtown median household income. Based on total revenues in 501c(3) arts organizations coming from each PAC's metropolitan area in 2000, as arts support increased, the median household income in the downtown area decreased between 2000 and 2007. Downtowners may have had less disposable income to spend on amenities over time.

The independent variable of downtowners ages 18 to 64 appeared to produce a significant and positive association with the change in arts and recreation employees over time. This association was not meaningful, however, as demonstrated by the ANOVA. The insignificant F-value for the regression suggested that the collective amount of variance in the arts and recreation employees was not large enough, and the standard errors of the independent variable were too large to be recognized. While employees in the arts and recreation industries may work in downtown establishments, it is likely that they may live outside the downtown area, and are not represented in the downtown headcount.

An index created from the overall average of the percentage values of the six dependent variable measures was used as a single dependent variable, to determine its relationship with the independent variables. Here, the ANOVA showed that the amount of variance in the dependent variable could be somewhat accounted for by the independent variables, as demonstrated by the F-values; however, none of the coefficients was significant. Most of the standard errors were very large, as they were averaged over all six dependent variable measures. Additionally, the wide range of large and small values used for each dependent variable measure contributed to the inconsistent results. In summary, some of the independent variables were helping to determine the value of the Index, to some degree, but none of the beta coefficients for any specific independent variable was large enough or consistent enough across the PAC downtowns to make a statistically significant contribution to the Index.

With each of the seven regressions for downtown revitalization, the original baseline value of each downtown revitalization characteristic in the year 2000 was inserted as an additional independent variable, in order to provide a better prediction[71]. In these cases, adding more independent variables may have resulted in a statistically significant ANOVA when the models were not significant without the extra independent variables, thus producing misleading results, instead of adding to the understanding of the relative importance of a performing arts center in comparison with other potential influences that affect downtown revitalization.

Other characteristics – Downtown revitalization

Up to this point, this research has examined the interaction of performing arts centers with downtown revitalization. Overall, as evidenced by the Index of six dependent variable measures, the test results were ambiguous in finding the relative strength of the relationships between performing arts centers and downtown revitalization, in the presence of other selected characteristics. One primary reason for this ambiguity was that the characteristics of downtowns varied in so many ways. The data used to measure downtown revitalization drew from a wide range of separate, literature-based characteristics, some of which may not appear initially to be commonly related, but which were synthesized into one coherent whole for this research, in order to assess any significant relationships between them. There were, however, some statistically significant relationships with the independent variables, including the presence of a performing arts center that would suggest this methodological approach was plausible. The hypothesis that downtowns with PACs would see greater increases over a common,

[71] Stockburger, D.B. (1996). *Multivariate statistics*. Online.

seven-year period of time through the specified revitalization characteristics, as compared with downtowns without a PAC showed mixed results in the actual regression. Each of the five independent variables – presence of a PAC, population density, downtowners ages 18 to 64, coasts or no coasts, and arts support – showed significance with some, but not all of the six dependent variable measures, and some of the significant associations were negative. It appears that when it comes to the consumer experience in the new urban marketplace, the negative, as well as positive directions of the coefficients suggest that nuances play a role in these relationships.

Three additional characteristics unaddressed in previous studies represent nuances within the types of communities, and may have a significant association with downtown revitalization: PACs operating in restored, historic buildings, downtown square miles, and the number of arts organizations in the metropolitan area.

Historic versus new PAC facilities: Although no previous studies about historic buildings specifically address their use as a performing arts center, 85 (69.7%) of the 122 PACs studied were housed in historic buildings. In general, the literature on the use of historic buildings as part of a downtown revitalization strategy focuses either on the restoration effort as a way to spend less money than in the construction of a new facility, or as a way to rejuvenate the character of the historic building and its contribution to the community over generations. There may also be subtle differences in the types of communities that choose to restore a historic building for use as a performing arts center, and these same communities may be smaller than those of mid-sized or larger

populations. Robertson's (1999) study of 57 small cities with populations between 25,000 and 50,000 noted that small-city downtowns did not see large volumes of traffic, and were less apt to use large public-assembly facilities such as stadiums or other entertainment amenities, but the use of restored historic buildings was a popular strategy to spark downtown activity. They relied heavily on creating a strong sense of place, and restored, historic buildings contributed to the overall character of the community. A similar connection between the use of restored historic buildings and the population of the community is found in this research. A calculation on downtowns with a new PAC showed an average population (8,093) of more than one-and-a-half times the average population size of downtowns with a historic PAC. Further correlations[72] using the previously identified independent variables and dependent variable measures on only the population of downtowns with a PAC showed significant correlations – mostly negative – with the downtowns using historic PACs. Although the PAC population contained considerably more downtowns with historic buildings than newly-built PACs, an additional comparison of the means of each dependent variable measure revealed higher growth rates in most of the dependent variable measures in downtowns with a new PAC[73]. If the differences between smaller and larger downtowns follow similar differences between communities which choose to restore a historic building as their PAC and those which construct a new PAC facility, then it is possible that ambiguous findings in the earlier regressions on downtown revitalization (with some, but not all

[72] See Table 8 in Appendix A for correlations of independent and dependent variables in downtowns with a new PAC versus downtowns with a historic PAC.

[73] The percent change in the dependent variable measure of arts and recreation employees over time was higher in downtowns with a historic PAC. A subsequent analysis will show that these historic PAC downtowns started with lower levels of arts and recreation employees than in the new PAC downtowns, therefore having more room to grow.

significant associations with the dependent variable measures, and those associations were not all positive) were due to the lack of differentiation between historic PAC and newly-constructed PAC downtowns.[74]

Downtown square miles: The second previously untested characteristic of downtown square miles may also have a significant association with downtown revitalization. Other analyses using the population density of the downtown area as an independent variable indirectly incorporates the downtown square miles, but here, the direct use of this measurement begins to better quantify the sizes of the present downtown boundaries, regardless of where their actual boundaries lie. Correlations were therefore run again on all downtowns with and without a PAC, including the actual downtown square miles, the present independent and dependent variable measures, and some other independent variables that had been eliminated earlier, due to multicollinearity. These new correlations showed significant associations, both positively and negatively, in both PAC downtowns and non-PAC downtowns. For the correlations solely with the dependent variables, all of the significant associations were positively correlated.

Overall, the correlations show that the independent variable of downtown square miles is associated with many of the independent and dependent variables used in the previous multiple linear regressions on downtown revitalization, especially in downtowns with a PAC. Use of the independent variable of downtown square miles in a future multiple linear regression might further inform the relationship strength between the size of the

[74] See Table 9 in Appendix A for a compare means of downtowns with a new PAC versus downtowns with a historic PAC in percent changes of growth over time.

downtown area and its level of vitality. A correlation table can be found in Appendix A, Table 10.

Number of arts organizations: The level of arts support in a community has been noted as a contributor of urban regeneration in previous studies[75], and for this research, the average revenue from the arts organizations within the metropolitan area was used as a measurement of arts support in the previous multiple linear regressions on downtown revitalization. Here, the number of arts organizations, regardless of their organizational size or budget, within the metropolitan area of each downtown, could serve as an alternative or additional measurement of arts support. A new correlation table (Appendix A, Table 11) including the independent variable of the number of arts organizations on all downtowns with and without a PAC shows significant and nearly all positive correlations with every single independent variable and dependent variable measure in PAC downtowns, and some, but not as many significant correlations in non-PAC downtowns[76]. The number of arts organizations may begin to better quantify the size of the cultural sector present in each community. As an independent variable, use of the number of arts organizations in a future multiple linear regression might further explain the relationship between the size of the arts sector and downtown vitality.

[75] Markusen, Gadwa (2010); Phillips, R. (2004).Montgomery, J. (2003).
[76] The independent variable of the downtown manufacturing labor force resulted in significant, negative correlations with the number of arts organizations in both PAC and non-PAC downtowns. This finding supports earlier studies noting a decrease in the downtown manufacturing sector in newly-revitalized downtowns, as the consumption economy increased. The downtown manufacturing labor force was identified earlier as a potential independent variable, but later eliminated from the regression, due to multicollinearity.

These three additional characteristics provide new information about the communities through population (i.e., smaller downtowns with historic PACs), downtown land area, and the cultural sector, to better describe downtown vitality. Because they are untested in previous studies, these three characteristics make a contribution to the literature on downtown revitalization and the presence of a PAC.

The issue of endogeneity

The analysis for Hypothesis 1 – Downtown revitalization used literature-based variables in multiple linear regressions, to test for whether the presence of a PAC sparked increases in downtown vitality. As a result, the findings showed that PACs were significantly associated with some, but not all of the variables; and some of the significantly-associated relationships were negative. With new information about the types of communities that used restored, historic buildings versus newly-constructed PACs, it appears that downtowns with new PACs did show higher growth rates of vitality than downtowns with historic PAC buildings. But at the heart of this research lies the important issue of endogeneity. Does the entrance of a PAC increase the level of vitality in the downtown, or is a downtown already vital by the time the PAC opens?[77] Previous tests comparing downtowns with and without a PAC revealed higher levels of vitality in downtowns prior to the entrance of their PAC than in downtowns with no PAC. An additional test using the actual levels of downtown vitality in the years 1990, 2000, and

[77] Linneman and Saiz (2006) noted through regression analysis several similar dynamics related to the rate of county population growth that may shed some light on the endogeneity issue, and further inform the reasons for the negative and positive directions of the t-values in the regressions for this research on downtown revitalization. Although highly educated populations grew faster than their lower educated counterparts, highly educated populations were also more effective at reducing community development at the local level, and may be influential at reversing population growth (p. 7).

2007 compares three types of downtowns: those with a historic PAC; those with a newly-constructed PAC, and downtowns with no PAC. Despite finding the highest growth rates in downtowns with a newly-constructed PAC, all downtowns with any type of PAC – historic or new – still started out with higher levels of vitality before the PAC's entrance[78].

Detecting PAC Readiness

While PACs might be able to spark some level of downtown vitality, the findings on endogeneity suggest that they are more likely to be harbingers of the presence of downtown vitality, where downtowns already having some level of vitality then make a decision to open a PAC. If the presence of a PAC is a response to downtown vitality, this research may better serve to identify characteristics that would make a downtown PAC-ready. A binary logistic regression using the dichotomous dependent variable of the presence of a PAC would categorize into which of two groups a given downtown would be most likely to fall: those that could open a PAC and those that could not, by identifying the conditions of the downtowns in the starting year (2000), and whether there would be specific characteristics significantly associated with PAC-ready downtowns. Table 12 in Appendix A shows the results of a binary logistic regression, using the previous and new independent variables, and the previous dependent variable measures for the year 2000, all as *independent* variables, and the presence of a PAC as the *dependent* variable (1 = downtowns with a PAC; 0 = downtowns without a PAC). As a result of this binary logistic regression, six key characteristics were significantly

[78] Figure 8 in Appendix A compares the vitality levels of the three types of downtowns in the years 1990, 2000, and 2007.

associated with PAC readiness[79]. Communities might use these same characteristics to compare their own levels of density, downtowners ages 18 to 64, and arts support through revenues and the numbers of arts organizations. Additionally, they might also take into account the extensiveness of their downtown boundaries. Finally, there are significant, negative associations with downtown population, and the number of arts and recreation employees. These negative findings are likely related to the larger number of downtowns with a historic PAC (85), as compared with the number of downtowns with a new PAC (37).

A second binary logistic regression further examines the nuances between downtowns that restored a historic building for use as a PAC, and downtowns that constructed a new PAC facility (1 = historic PAC; 0 = new PAC). The results in Table 13 (Appendix A) show fewer characteristics related to historic PAC downtowns, with the total labor force and geographic location (coasts or elsewhere) having significant and positive associations. The negative association of downtown population with historic PAC downtowns confirms the negative association found in the previous binary logistic regression on PAC readiness, which used the two populations of downtowns with a PAC, and downtowns without a PAC. Additionally, downtowns with a historic PAC show a lower level of education. It appears that downtowns with a newly-constructed PAC are

[79] Four characteristics significantly and positively associated with PAC readiness were downtown population density, downtowners ages 18 to 64, and arts revenues, as well as the number of arts organizations in the metropolitan area One additional characteristic – Downtown square miles – was significantly and positively associated with PAC readiness at 10% (p = .09).Two other characteristics were significantly and negatively associated were the number of arts and recreation employees, and the downtown population. One additional characteristic – Downtown square miles – was significantly and positively associated with PAC readiness at 10% (p = .09).

also likely to have higher levels of population and education present before opening a PAC.

Using characteristics as benchmarks

Communities can use the selected characteristics identified in the binary logistic regressions on PAC downtowns as benchmarks for comparing their own levels of PAC readiness. Table 14 in Appendix A presents the averages of each of the independent variables for downtowns with a PAC, differentiating the historic-PAC downtowns from the newly-constructed PAC downtowns. Across the board, seven characteristics[80] show higher levels in downtowns with a newly-constructed PAC, compared with downtowns that opened a historic PAC[81]. By looking at the averages of each characteristic, downtowns can consider whether to construct a new PAC, restore a historic building, or even decide they might not be a match for opening a PAC at all.

Limitations of the research – Downtown revitalization

Constraints in the data gathering process may have placed limitations on the findings. Within the literature, other characteristics mentioned were unavailable to measure. For Hypothesis 1 – Downtown revitalization, the return of *business establishments* signaled a boom in downtown revitalization; yet, data for the number and types of business establishments were unavailable at the census tract level, to include in the multiple linear regressions. A change in the number and types of downtown business establishments

[80] Although six key characteristics were significantly associated with PAC readiness at $p \leq .05$, here, the additional characteristic of downtown square miles is included as a seventh benchmark, due to its strong correlation and near significance level ($p = .09$).

[81] The characteristic of downtown square miles showed a slightly lower mean in the newly-constructed PAC downtowns, but the median was higher.

between 2000 and 2007 might have contributed to a deeper understanding of the characteristics that spark downtown vitality[82]. Leinberger (2005) also noted the importance of *sidewalks* within the downtown area, to allow citizens to come downtown, and walk from one building to another in an engaged manner. Sidewalks typically serve as part of the infrastructure that connects downtown buildings with each other, thus signaling a higher level of density. While it may have been possible to systematically count the sidewalks within each downtown area for the current year, it was not possible to obtain a count for the previous time period of 2000-2007, thus making this potentially interesting data unavailable. Additionally, the downtown revitalization research only examined the downtown *perimeters* that involved one or two census tracts surrounding the performing arts center. It is possible that some of the significant, but negatively correlated findings in the downtown revitalization research came as a result of having a growing population that exceeded the very small geographic perimeters used to define the downtown area in this research. A future expansion of this study could include a larger geographic footprint than one or two census tracts. With regards to organizational size, the physical building might be further described by using the number of square feet, which would also affect the manner in which the PAC operates. A 300,000 square-foot facility requires more maintenance and labor than a 50,000 square-foot venue; and some PACs use a small number of staff, along with a larger number of contracted auxiliary employees. These size and operational differences also affect the level of influence a

[82] The number of business establishments in the zip code of each downtown was included as an independent variable in the two subsequent binary logistic regressions on PAC readiness and downtowns with historic versus new PACs. The zip code area of each downtown typically spans a broader area than the census tract, and would not be a precise representation of the downtown area. Results from both binary logistic regressions were not significant.

PAC has on its community. All of these aforementioned characteristics were unexamined in this research.

HYPOTHESIS 2 – OVERALL PAC HEALTH

Five of the nine independent variables[83] accounted for significant amounts in the variance in the dependent variable of overall PAC health, as represented by the percent change in PAC net revenue between 2000 and 2007. Overall, gains in the net revenues of performing arts centers were greater to a significant degree in communities with older PACs and within a greater population with a Bachelor's degree or higher. The change in a PAC's net revenue between 2000 and 2007 was significantly lower in communities with larger populations, and with greater numbers of arts, hotels and food employees per capita.

Summary of key findings – Overall PAC health

The second hypothesis in this research examined the potential relationships between the characteristics of 129 communities and the overall health of their PACs between the years 2000 and 2007. The findings suggest that PAC health was most associated with the community characteristics of education levels, populations (total metropolitan population, and arts, hotels, and food employees), and attributes of the PAC itself (PAC age and the percent of contributed revenue). As originally hypothesized, communities with higher levels of education experienced an increase in the overall health of their PACs over time. Conversely, if the total metropolitan population of the specific population of arts, hotel,

[83] Population of the metro; coasts or no coasts; PAC age; education; median household income; arts, hotels & food employees; number of seats; program revenue; and contributed revenue

and food employees increased, there were lower levels of PAC health over time. Older PACs demonstrated their ability to survive with working capital over the years, and thus had more opportunities to improve their levels of health. But even with increasing levels of contributed revenue, PACs would not be able to keep up with the expenses at the same rate, to produce shows and operate the facility over time.

An examination of each of the significant independent variables further explains its influence on overall PAC health. The decrease in PAC net revenue between 2000 and 2007, as a result of the increase in the population of the metropolitan area may be attributed to the number of competing entertainment and leisure activities that a community offers, which are unrelated to the local performing arts center. With an increase in population come more after-work opportunities that may be equally as enticing as attending a show at the local PAC. Performing arts centers often bring a high level of exposure to the public, but the level of exposure does not necessarily equate to increased attendance and net revenues.

Similar to the population of the metropolitan area, the decrease in PAC net revenues in association with arts, hotels, and food employees may also be related to other interests and activities available in the community, all competing for the same discretionary dollars as the PAC. An alternative interpretation may also involve the expenses of performing arts centers to serve the patrons and constituents attending. People enjoy attending a performance at the PAC preceded with, or followed by dining out. Tourists and business travelers attend PAC shows while visiting the community. These types of

consumption activities can increase attendance and ultimately result in earned revenues for the PAC, as long as there are available tickets to sell for the performances, and the revenues cover the operational expenses[84]. Outside of the live performance, however, the use of the PAC facility becomes less excludable. With more people attending a performance, more attention must be given to cleaning the facility, providing security, ushers, catering refreshments, and hiring engineers to monitor the facility equipment (e.g., steam generators, water chillers) that drive up the cost of the utilities. It is therefore conceivable that an increase in arts, hotel, and food employees could stimulate an increase in PAC ticket revenues up to a point, at which time the expenses required to support the patrons attending the performance exceed the revenues received, thus presenting a decrease in the t-value of the regression.

Regarding the resulting decrease in PAC net revenues between 2000 and 2007 from the independent variable of contributed revenue, it is likely that the expenses to present performances at the PAC rose faster than the available revenues to support them. Another technical interpretation to consider is the timeline in which a PAC files its Form I-990, which may affect the results reported. If a PAC turns in its annual I-990 form for the fiscal year before closing its financial books for the fiscal year, it is conceivable that an I-990 form might report a net loss for the fiscal year, even though it ultimately reached net revenue or a net loss for that year.

[84] Live performances in a PAC theater function as a collective good, where consumption of the shows is excludable, but non-rival. Only those who purchase tickets can see the show, and selling more tickets to the show does not add a marginal cost to produce the show, at least, up to the point of reaching the maximum seat capacity.

The independent variables of PAC age and education in the metropolitan area accounted for significant and positive amounts in the variance of overall PAC health. Relative to the age of PACs, their net revenues can increase over time, as PACs get older. As previous studies suggest[85], older organizations have had more time to find productive ways to operate efficiently while working to increase their revenues, as opposed to incurring a fiscal year-end operating deficit. The independent variable of education also correlated positively with the overall health of a PAC. Although the research in Hypothesis 1 – Downtown revitalization – noted a decrease in attendance by people with higher levels of education in the downtown area, those drawn from the larger metropolitan area who attended live performances, especially in classical music, still had more formal education (NEA, 2009), with higher incomes[86] that could provide more revenues through ticket sales and charitable contributions. As an additional check for completeness, a second multiple linear regression was run on the overall health of a PAC, using the changes in the absolute values of three of the independent variables (population of the metropolitan area, median household income, and arts, hotels, and food employees) between 2000-2007, to see if the changes over time had significant associations with the dependent variable of the percent change in PAC net revenues (or net losses) over time. Table 10 in Appendix B shows weaker significant relationships than in the original version[87], although the change in the metropolitan population 2000-2007 shows a significant,

[85] Scott (2003), Hannan, Carroll, Dobrev, Han (1998), Evans (1987).
[86] Voith, Wachter (2009), Markusen (2007), Markusen, Schrock, Barbour (2004), Glaeser, Shapiro (2003), Frieden, Sagalyn (1990).
[87] Data from the year 2000 for the three modified independent variables came from U.S. Census estimates, and some of the communities included in the original population from the 2000 U.S. Census were not included in the 2007 estimates. The slightly reduced population, from 129 cases down to 121 cases, may have contributed to the weaker results; however, the ANOVAs in both multiple linear regressions were significant.

positive association with overall PAC health[88]. Based on these two multiple linear regressions, the overall health of a PAC over time in the communities involved is most associated with a combination of at least the following characteristics: Population of the metropolitan area (negatively associated in the year 2000; positively associated with the change between 2000 and 2007); percent of contributed revenue of a PAC (negatively associated); arts, hotels, and food employees in the metropolitan area (negatively associated); and median household income (negatively associated).

Limitations of the research – Overall PAC health

The findings from the research on the overall health of a PAC in 2000-2007 might have been different in another time period. A future test for completeness would use the same dependent variable of the percent change in net revenues of a PAC over time, but with an alternative time period, to determine whether there were changes in the external socioeconomic conditions that would produce different results in the PAC's overall health. For example, a change in PAC net revenue between 2008 and 2010 might reveal the results of PAC health during the height of an economic recession.

Performing arts centers have a complex relationship with their communities, and may thrive with an increase in downtown population over time; although their net revenues

[88] The original multiple linear regression using the actual population of the metropolitan area in the year 2000 showed a significant, negative association with overall PAC health. Education level in the year 2000, significant in the original multiple linear regression, dropped out of significance in the new regression, although it still approached significance at p = .105. PAC age, significant in the original multiple linear regression, also it remained fairly close to significance at p = .116. Change in the median household income 2000-2007 showed a significant, negative association with overall PAC health. The original multiple linear regression using the actual level of median household income in 2000 did not significance, although it approached significance at p = .076. The percent of contributed revenue of a PAC in the year 2000 remained significant and negatively associated with overall PAC health.

can decrease with increases in arts, hotel, and food employees, median household income, and the percent of the PAC's contributed revenue. These findings reveal that performing arts centers operate with an ever-changing delicate balance, influenced positively and negatively by varying internal and external characteristics over time.

The following chapter will bring to a conclusion the discussion on PACs, their relationship with downtown vitality and overall health, identify future areas for research, and address implications for this research.

CHAPTER SIX

CONCLUSIONS AND IMPLICATIONS

This dissertation examined the relationship between performing arts centers and downtown revitalization, and whether community characteristics played a role in the overall health of a performing arts center. The research design was developed from a synthesis of perspectives on urban sociology, downtown revitalization, and the experience economy, to set the theoretical framework for the strategies used to stimulate downtown vitality. In turn, the research builds upon additional literature from organizational sociology, the nonprofit performing arts, and philanthropic studies, to examine the effects of the community on the overall health of its performing arts center. Characteristics used as independent and dependent variables, in order to examine downtown revitalization and the overall health of the performing arts center, were selected from these previous studies. None of the previously-cited studies included the complete array of characteristics used in this research; therefore, multiple linear regressions were employed here, in order to include all of the characteristics, identify which were most strongly related to downtown revitalization and overall PAC health, and determine the relative importance of all these characteristics together. This concluding chapter discusses the significance of this research, its methodological contributions, ideas for future research, and provides recommendations for practitioners.

From the downtown revitalization perspective, this research builds upon the urban sociology theories of the Los Angeles School, with its emphasis on the people within the place. Although a performing arts center is an inanimate structure, it was identified as a

strategy to support people by offering leisure and entertainment activities that would reestablish downtown as a place to belong, and promote a vibrant, active, and economically viable urban core. Earlier studies predominantly examining downtowns through case studies, essays, and speculation have shed light on the specific characteristics of a single downtown, without knowing whether the same characteristics were applicable to other downtowns. Previous studies that did use quantitative indicators were mostly focused on sports facilities, with a few references to cultural institutions, and most of these quantitative indicators represented ways that the general public would utilize the facility through attendance and ticket purchases to see a game. With regard to endogeneity, researchers isolated the facility being studied from other community characteristics, in order to examine its impact alone, during a specific time period.

This thesis contributes to the growing body of literature on downtown revitalization through its methodological approach. The research focuses solely on performing arts centers, excluding all other forms of public assembly entertainment facilities (e.g., stadiums, arenas, convention centers, ice rinks, etc.) as well as other cultural facilities (e.g., galleries, museums, theaters, libraries, etc.), in order to delve into the traits and idiosyncracies that distinguish a performing arts center from other cultural institutions and public assembly facilities. This research is also not an isolated experiment. Contrary to creating artificial treatment and control groups before applying the treatment, these multiple regressions used naturally occurring data already available about intact groups. Rather than examining how the public would utilize the performing arts center through ticket purchases and attendance, this study reversed the approach by examining the

impact the performing arts center made on its surrounding area by using both economic and sociological characteristics as dependent variable measures. With regards to endogeneity, the performing arts centers studied for downtown revitalization were not isolated from their surrounding environment; rather, the same socioeconomic variables were examined before, during, and after the performing arts center opened. Instead of examining the characteristics of a few downtowns and their public assembly facilities, this research evaluated the impact of performing arts centers on downtown revitalization through a systematic approach, using quantitative data that represented the same characteristics identified in earlier studies through multiple regressions on a population of 122 downtowns which opened a performing arts center between 2000 and 2007, and compared them with 96 downtowns with no performing arts center during the same time period. By using this in-depth, quantitative methodological approach, the findings from this study make a contribution to the literature by substantiating or disproving previously under-tested studies. Finally, new characteristics untested in previous studies show that it may be possible to identify the conditions of downtowns that would be likely to construct a new PAC, restore a historic building, or not open a PAC at all.

From the perspective of overall PAC health, this research reversed the approach used to test for downtown revitalization levels. Instead of examining the specific transactions between the performing arts center and its community, here, the broader socioeconomic characteristics of the community, as well as attributes of the PAC itself, were examined for their relationship with the overall health of the PAC over time. Organizational health has been defined in many ways through previous studies, by evaluating specific types of

organizations and industries, both in the commercial and nonprofit sectors. In Hager's (2001) application of the Tuckman-Chang indicators (1991) of financial vulnerability of 7,266 nonprofit arts organizations, he noted that this analysis appeared to be less reliable in predicting the closure of nonprofit performing arts centers, than for other more generic arts organizations. PACs contain qualities that differentiate them from other types of arts organizations. This research focuses solely on the health of nonprofit PACs, excluding other types of arts organizations, in order to concentrate on those specific qualities.

This research shows that performing arts centers can and do play a role in revitalizing downtowns. They are positively related to the median household income level. They are significantly correlated with education, although the immediate vicinity around a PAC experiences a slower growth rate of people with a Bachelor's degree or higher. This research also shows that a single characteristic is not solely responsible for revitalizing downtown; rather, the increased vitality results from a *confluence* of the characteristics. As revealed by the endogeneity tests, however, a PAC is far less likely to enter a deserted downtown bereft of vitality. Instead, the entrance of a PAC confirms the presence of vitality, before it proceeds to activate vitality further. PACs serve as a harbinger of downtown revitalization.

With the overall health of a PAC, the increase of net revenues over time can signal that specific community characteristics are present at high enough levels to buoy the PAC, and that the PAC is moving in a sustainable and healthy direction. It is important, however, to remember that the single component of net revenues does not stand alone,

but is in fact, made up of a myriad of ever-changing external and internal subcomponents that determine whether the PAC will end up with net revenues or net losses.

Implications for practitioners

This research may further inform civic leaders about which community characteristics to pay attention to when making decisions on whether to open a performing arts center, which of those characteristics are already present in their communities, and to what degree, and whether these characteristics will assist in successfully sustaining the operations of a performing arts center once it is open.

- **Defining downtown revitalization and overall PAC health:** Civic leaders can use this research as a starting point to make their own decisions about how to define revitalization in their own downtowns. On one hand, communities are different from each other in size and shape, as evidenced by the extreme range of values within the dataset for each variable. On the other hand, some communities are beginning to seek out strategies to distinguish themselves from other communities, and to showcase their local amenities that might lure in more people and grow their economic base (Markusen, Schrock, Barbour, 2004). By reviewing the trends and patterns in this thesis, civic leaders may want to break away from parts of this research definition and emphasize alternative components to make their communities even more distinctive and potentially more competitive. Additionally, with overall PAC health, some may substitute alternative measures to define organizational health, different from the change of net revenues over time. For example, favorable media reviews about PAC's performances may be

perceived by the public as a symbol for a healthy organization, regardless of their financial performance. This thesis contends however, that at the end of the day, a performing arts center –especially in its start-up years – needs short-term, working capital, in order to continue its daily purpose for doing business. At some point, performing arts centers that experience net losses year over year can find themselves in severe financial conditions that may not easily be reversed.

- **Using characteristics as benchmarks:** Communities can use the selected characteristics in this research as benchmarks to compare their own levels of downtown revitalization and overall PAC health over time. For example, downtowns that are considering opening a PAC can assess their current levels of education, median household income, population density, arts support, and make note of their geographic area, not only to assess how their current levels of these characteristics will play a role in their vitalization efforts, but also to devise strategies that either compensate for, or build upon these same characteristics to better ensure a successful downtown. Communities that have a greater proportion of their population with Bachelor's degrees or higher; and older PACs may be able to build upon these characteristics to keep their PAC sustainable.
- **Testing for PAC readiness:** When it comes to using a performing arts center to stimulate downtown revitalization, civic leaders contemplating opening a PAC may want to assess their current levels of downtown revitalization characteristics to see if they are present at a sufficient enough level to support the opening of a PAC.

Implications for future research

This thesis can stimulate future research that could further inform the understanding of any relationships between performing arts centers and downtown revitalization, as well as between community characteristics and the influence on the overall health of their performing arts center. Four ideas for future research are posed here.

1. **Time period:** This research on downtown revitalization used the time period of 2000-2007 to determine whether a downtown had been revitalized. Some downtowns, however, may take several decades to be revitalized; others may increase the vitality levels within a few years. While it is likely that downtown revitalization involves more of an ongoing process that never crosses the finish line, future research using the same variables in this study might examine the downtown revitalization process over a longer period of time.
2. **Matched pair analysis:** With the inclusion of new characteristics, the population of downtowns with and without a PAC could be resorted and equally matched through downtown square miles, the number of arts organizations in a community, or the use of only new PACs or only historic PACs. Multiple linear regressions including the new characteristics as independent variables may further examine the likely association of a PAC's ability to increase the vitality of its downtown.
3. **PAC age:** A compare means analysis using the same dataset of all non-PAC downtowns could be compared with only those PAC downtowns that had older PACs. If for example, a sub-population of PACs age five and older were used, it might provide insight on whether downtown revitalization levels are higher after

PACs have had time to become more stable, or if revitalization levels peak upon the initial PAC opening, and decline after say, five years or more.

4. **Preconditions for overall PAC health:** Finally, it might be valuable to compare performing arts centers by reclassifying them into two groups: those that had net gains, and those that had net losses, to see if any of the independent variables used in the multiple linear regression of overall PAC health best identified the group into which each PAC would fit.

Performing arts centers bring a high level of exposure to their communities. These venues have been heralded as a viable strategy for revitalizing downtowns by offering performances and activities to attract attendees, bringing civic leaders and residents together, and stimulating economic growth. As communities large and small continue to assess the value of these cultural institutions, this research can point out the most salient characteristics associated with performing arts centers and downtown revitalization, the conditions of the community that would support the entrance of a PAC, and those community characteristics that may move the performing arts center in the direction of long term sustainability. Additionally this research addresses subtle nuances involved with the performing arts center, in order to provide benchmarks to better gauge their success in the community along the way.

APPENDIX A –DOWNTOWN REVITALIZATION

Appendix A – Table 1: Descriptive statistics

Table 1 shows the means and medians for each independent and dependent variable used in the multiple regressions for Hypothesis 1 –Downtown Revitalization. The variables showed some skewness, but were more leptokurtic. The two independent variables of population density $\log_{10}$ and arts support $^{0.333}$ show descriptive statistics in both the untransformed and transformed versions. These two variables were ultimately transformed, in order to make their data set more normally distributed than their untransformed versions. The dependent variable measures were leptokurtic, but appeared to be more normally distributed, and were therefore left untransformed.

Table 1. Descriptive statistics of independent and dependent variables for downtown revitalization.

		Pop. Density $\log_{10}$			Arts Support $^{0.333}$	
	Presence of a PAC	Untransformed	Transformed	Ages 18 to 64	Untransformed	Transformed
Mean	.56	4570.306	3.4368	2889.72	286204.3	55.98
Median	1.00	3310.950	3.5200	1942.50	150777.0	53.26
Std. Deviation	.498	4544.85	.54464	3297.983	406502.5	32.59
Skewness	-.242	2.159	-1.906	2.828	3.610	.732
Std. Error of Skewness	.165	.165	.165	.165	.165	.165
Kurtosis	-1.960	5.477	7.904	10.476	17.292	1.859
Std. Error of Kurtosis	.328	.328	.328	.328	.328	.328
Range	1	26625.4	4.43	21959	3102131	197.63
N	218	218	218	218	218	218

	Coasts or no coasts	ResEstabs 2000-2007	Education 2000-2007	MedHH Inc 2000-2007
Mean	.32	6.819	23.944	-5.601
Median	.00	4.100	17.000	-6.100
Std. Deviation	.468	9.5544	40.8507	14.5606
Skewness	.772	2.231	2.229	.424
Std. Error Skewness	.165	.165	.165	.165
Kurtosis	-1.418	8.683	15.819	3.100
Std. Error of Kurtosis	.328	.328	.328	.328
Range	1	87.4	453.2	126.4
N	218	218	218	218

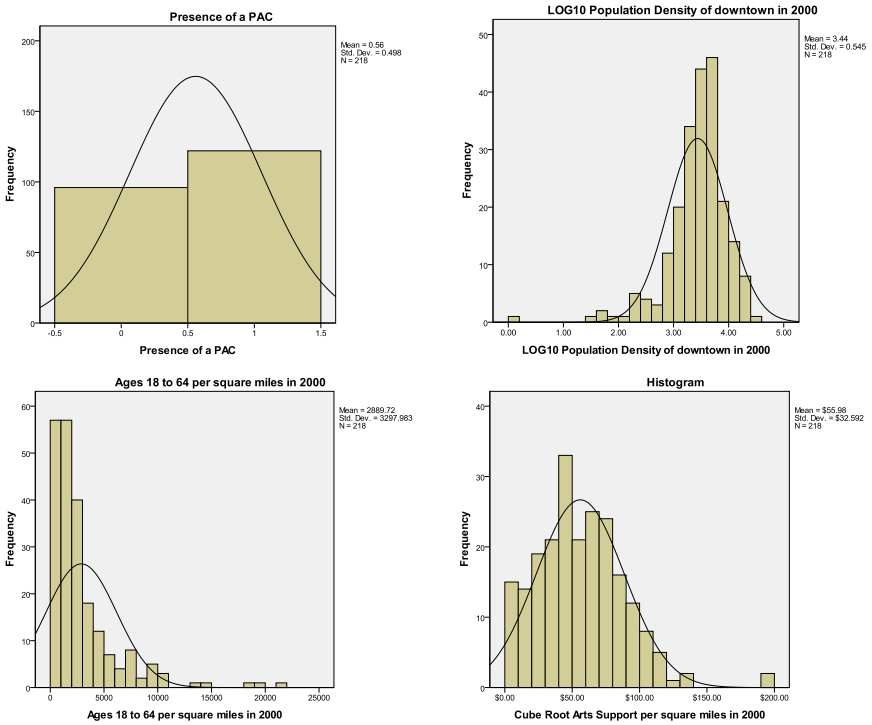
	Arts & Rec 2000-2007	OccRes 2000-2007	Population 2000-2007	Index 2000-2007
Mean	25.065	2.371	2.292	52.9785
Median	16.900	.900	.800	39.1850
Std. Deviation	54.7574	10.5129	10.3675	84.84616
Skewness	1.184	.917	1.309	.726
Std. Error Skewness	.165	.165	.165	.165
Kurtosis	10.988	4.337	3.993	3.248
Std. Error of Kurtosis	.328	.328	.328	.328
Range	589.4	87.3	71.8	701.68
N	218	218	218	218

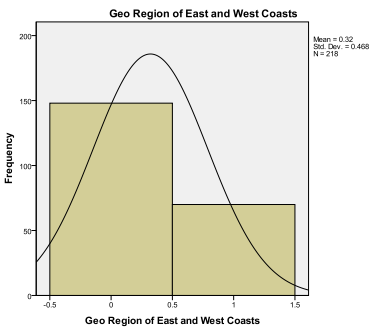
Both populations represented a wide range of values. For example, in the year 2000, Philadelphia, a downtown with a PAC had a population of 49,211, and the downtown population of Lynchburg VA, another downtown with a PAC, was 288. Similarly, the non-PAC downtown of Kenner, LA's had a population of 25,408, and Urbana, IL's non-PAC downtown population was 175. Despite the wide range of values, all downtowns were left in the two populations studied. The general nature of downtowns included large and small values in each characteristic identified as an independent variable or dependent variable measure.

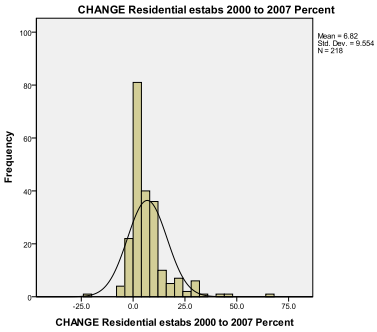
Appendix A – Figure 5: Histograms of independent and dependent variables

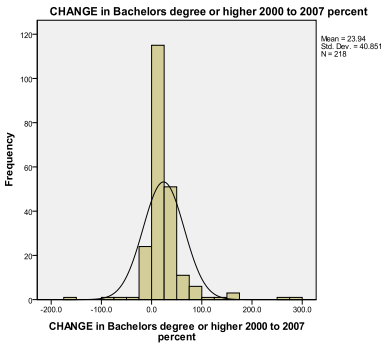
Figure 5 below shows the histograms, along with their normal distribution curves, developed for each of the independent and dependent variable measures for Hypothesis 1 – Downtown Revitalization. Here, the histograms were used as a visual summary of the distribution of each variable's data set, in order to assess the level of normal distribution. Overall, these histograms show a wide range of data points in each data set. Those independent variables that were transformed (e.g., Population density $\log_{10}$, and Arts support $^{0.333}$) resulted in a more normally distributed data set. Although the dependent variable measures were leptokurtic, they were more normally distributed, as far as skewness, and were therefore left untransformed.

Figure 5. Histograms of independent and dependent variables for downtown revitalization.




Geo Region of East and West Coasts
Mean = 0.32
Std. Dev. = 0.468
N = 218
Frequency
Geo Region of East and West Coasts


CHANGE Residential estabs 2000 to 2007 Percent
Mean = 6.82
Std. Dev. = 9.554
N = 218
Frequency
CHANGE Residential estabs 2000 to 2007 Percent


CHANGE in Bachelors degree or higher 2000 to 2007 percent
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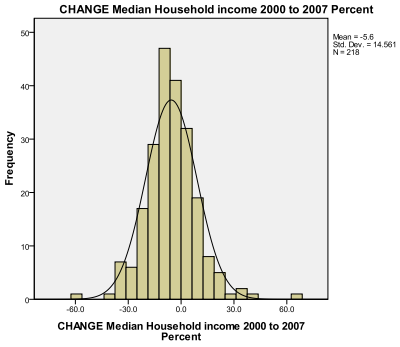
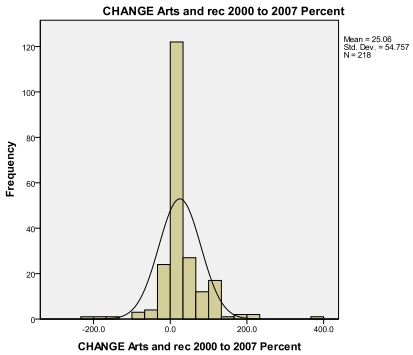
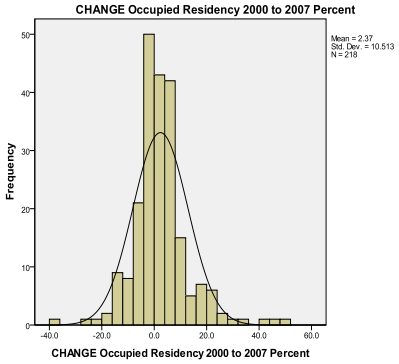
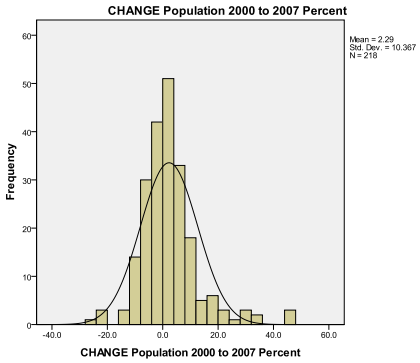
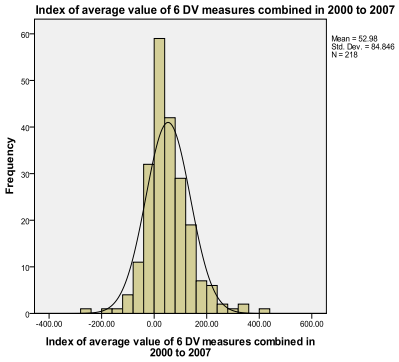
Std. Dev. = 40.851
N = 218
Frequency
CHANGE in Bachelors degree or higher 2000 to 2007 percent


CHANGE Median Household income 2000 to 2007 Percent
Mean = -5.6
Std. Dev. = 14.561
N = 218
Frequency
CHANGE Median Household income 2000 to 2007 Percent


CHANGE Arts and rec 2000 to 2007 Percent
Mean = 25.06
Std. Dev. = 54.757
N = 218
Frequency
CHANGE Arts and rec 2000 to 2007 Percent


CHANGE Occupied Residency 2000 to 2007 Percent
Mean = 2.37
Std. Dev. = 10.513
N = 218
Frequency
CHANGE Occupied Residency 2000 to 2007 Percent


CHANGE Population 2000 to 2007 Percent
Mean = 2.29
Std. Dev. = 10.367
N = 218
Frequency
CHANGE Population 2000 to 2007 Percent


Index of average value of 6 DV measures combined in 2000 to 2007
Mean = 52.98
Std. Dev. = 84.846
N = 218
Frequency
Index of average value of 6 DV measures combined in 2000 to 2007

Appendix A – Tables 2a and 2b: Correlations with independent and dependent variables

Tables 2a and 2b show correlations of the independent variables with each other, and the independent variables with the dependent variable measures. In Table 2a, the following independent variables were correlated with each other: Population density $\log_{10}$ was correlated with all other independent variables (Presence of a PAC, ages 18-64, arts support $^{0.333}$, and coasts or no coasts). Ages 18-64 correlated with all other independent variables, with the exception of the Presence of a PAC. Arts support$^{0.333}$ correlated with population density $\log_{10}$ and ages 18-64, but not with the Presence of a PAC, or coasts or no coasts. Coasts or no coasts correlated with population density $\log_{10}$ and ages 18-64, but not with the Presence of a PAC or arts support. The Presence of a PAC was only correlated with population density $\log_{10}$.

Table 2a. Correlations with 2000 variables

	Presence of a PAC	Pop den. Log_{10}	Arts 18-64	Arts support$^{0.333}$	Coasts or no coasts
Presence of a PAC					
Population density $\log_{10}$	-.156 *				
Ages 18 – 64	-.107	.620 ***			
Arts support $^{0.333}$	.023	.371 ***	.244 ***		
Coasts or no coasts	-.122	.403 ***	.422 ***	.121	
Residential estabs 2000-2007	-.026	-.271 ***	-.113	-.131	-.276 ***
Education 2000-2007	-.190 **	.004	.004	-.053	.150 *
Med household inc 2000-2007	.146 *	-.001	.087	-.133	.196 **
Arts & rec employees 2000-2007	-.043	.003	.018	-.039	.111
Occupied housing units 2000-2007	-.006	-.267 ***	-.148 *	-.158 *	-.205 **
Population 2000-2007	-.003	-.242 ***		-.161 *	-.140 *
Index of 6 DVs 2000-2007	-.098	-.065		-.111	.118

*p ≤ .05; **p ≤ .01; ***p ≤ .001

Correlations between the independent variables and dependent variables showed that the Presence of a PAC was correlated with education 2000-2007, and median household

income 2000-2007. Population density $\log_{10}$ correlated with residential establishments 2000-2007, occupied housing 2000-2007, and downtown population 2000-2007. Ages 18-64 correlated with occupied housing 2000-2007. Arts support $\log_{10}$ correlated with occupied housing 2000-2007 and population 2000-2007. Coasts or no coasts correlated with residential establishments 2000-2007, education 2000-2007, median household income 2000-2007, occupied housing 2000-2007, and population 2000-2007. No independent variables correlated with the dependent variables of arts and recreation employees 2000-2007, the index of six dependent variable measures 2000-2007.

Table 2b shows the correlations between the dependent variables. All dependent variables were correlated with each other, with the exception of arts and recreation employees 2000-2007. An additional exception was a correlation between arts and recreation employees 2000-2007 and the index of six dependent variable measures 2000-2007.

Table 2b Correlations of the dependent variables

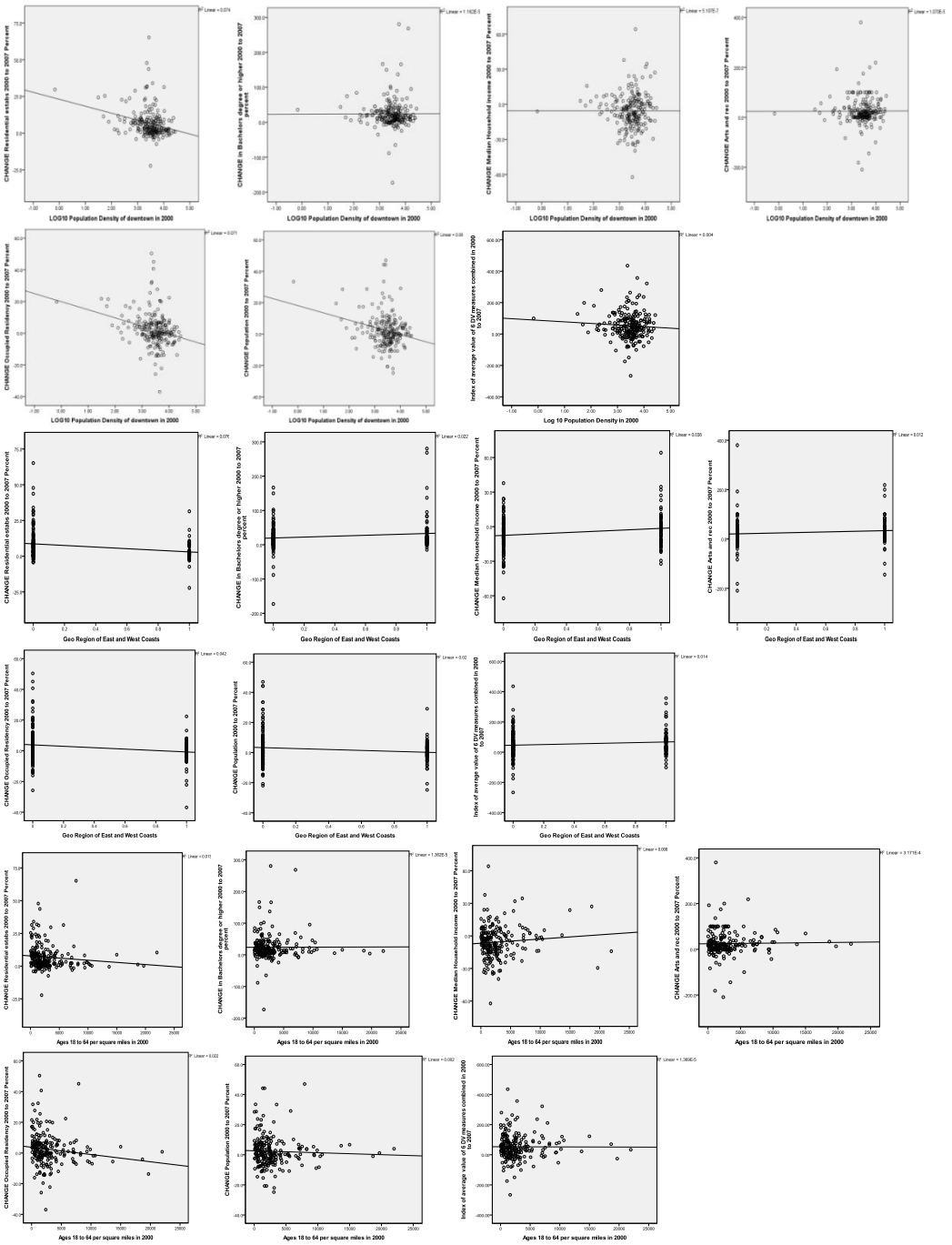
	ResEstabs 2000-2007 (1)		Education 2000-2007 (2)		MedHHInc 2000-2007 (3)		ArtsRec 2000-2007 (4)		OccRes 2000-2007 (5)		Population 2000-2007 (6)		Index 2000-2007 (7)	
ResEstabs 2000-2007			.266	***	.318	***	.056		.900	***	**.855**	***	.460	***
Education 2000-2007	.266	***			.254	***	.115		.361	***	.344	***	.681	***
MedHH Inc 2000-2007	.318	***	.254	***			.061		.424	***	.398	***	.430	***
ArtsRec 2000-2007	.056		.115		.061				.070		.089		.728	***
OccRes 2000-2007	.900	***	.361	***	.424	***	.070				.871	***	.535	***
Population 2000-2007	.855	***	.433	***	.398	***	.089		.871	***			.516	***
Index 2000-2007	.460	***	.681	***	.430	***	.728	***	.515	***	.516	***		

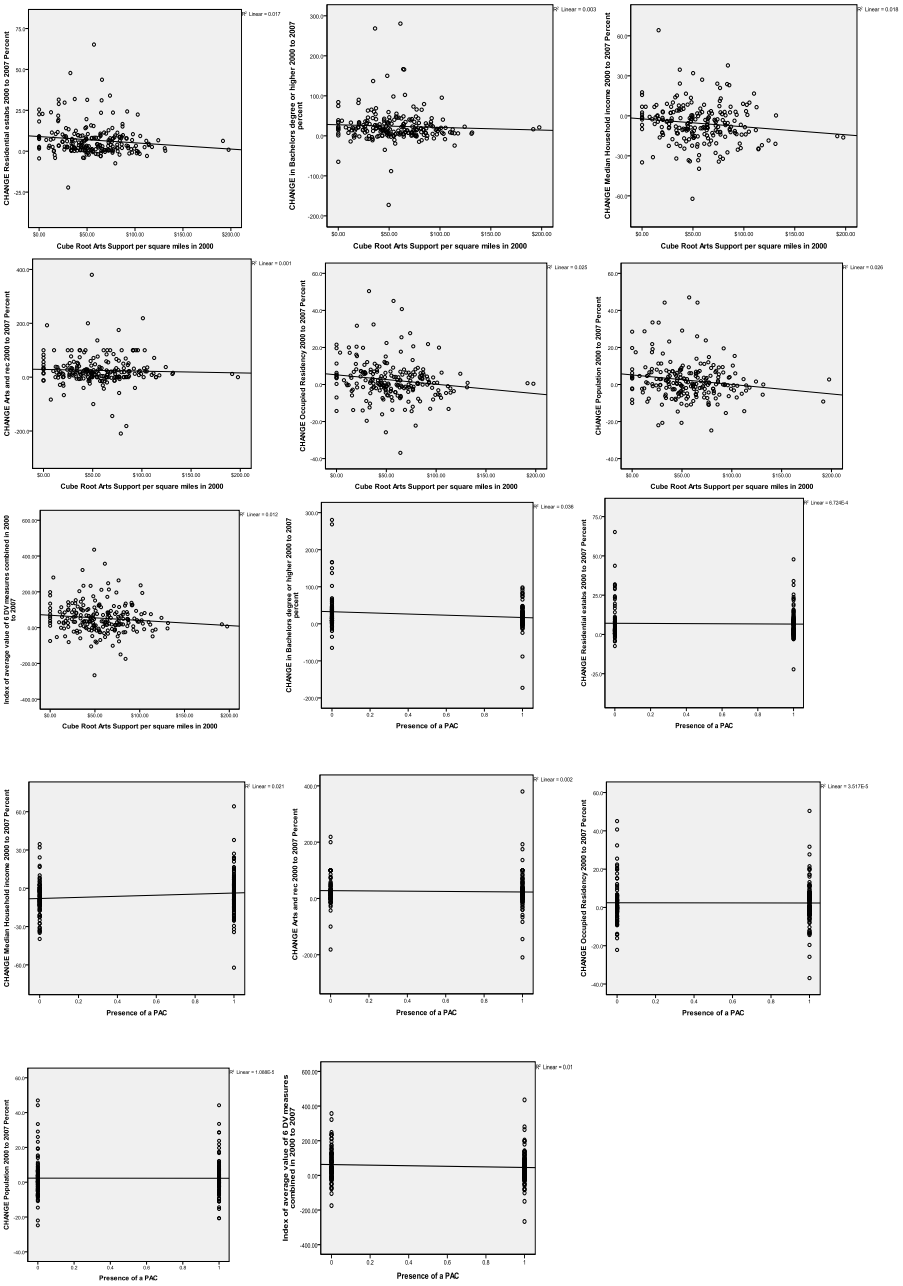
*p ≤ .05; **p ≤ .01; ***p ≤ .001

Appendix A – Figure 6: Scatterplots

Scatterplots were run on every combination of the independent variables with each dependent variable measure, as a preliminary visual test, to look for any relationships between each of the variables, prior to running the regressions. Nearly all of the independent and dependent variable relationships appeared to have either a weak or spurious relationship. There was some negative association between the independent variable of population density and the dependent variable measures of residential establishments, occupied housing, and downtown population. The dichotomous independent variable of coasts or no coasts showed weak, negative relationships with the dependent variables of residential establishments, occupied housing, and the downtown population; and weak, positive relationships with education levels and median household income. The independent variable of downtowners ages 18 to 64 showed very weak relationships with the dependent variables of residential establishments, median household income, and occupied housing; although in the presence of the other independent variables within the regression itself, the scatterplot relationship did not register as significant. The independent variable of arts support showed weak and negative scatterplot relationships with each of the dependent variable measures, although the only relationship in the final regression was with the dependent variable of median household income. Finally, the dichotomous independent variable of the presence of a performing arts center showed a weak, negative relationship with education levels, and a weak, positive relationship with median household income.

Figure 6. Scatterplots




CHANGE Residential estabs 2000 to 2007 Percent
CHANGE in Bachelors degree or higher 2000 to 2007 percent
CHANGE Median Household Income 2000 to 2007 Percent
CHANGE Arts and rec 2000 to 2007 Percent
CHANGE Occupied Residency 2000 to 2007 Percent
CHANGE Population 2000 to 2007 Percent
Index of average value of 6 DV measures combined in 2000 and 2007
Cube Root Arts Support per square miles in 2000
Presence of a PAC

Appendix A – Table 3: Multicollinearity tests

Multicollinearity tests for interdependence among the independent variables ensured that any of the independent variables were not so highly correlated as to cause a misinterpretation of the regression. An earlier test found multicollinearity among two independent variables – manufacturing labor force and total labor force in the downtown area. Those two independent variables were subsequently removed from the equation. Table 3 below shows multicollinearity tests among the remaining independent variables, with tolerance levels above .10, and variance inflation factor scores between 1.022 and 1.822; all scores that indicate no multicollinearity.

Table 3. Multicollinearity tests

Independent variables	Collinearity Statistics	
	Tolerance	VIF
Presence of a PAC	.972	1.029
Coasts or no coasts	.786	1.272
Population density (log_{10})	.593	1.688
Ages 18 to 64	.585	1.708
DV: Arts support $^{(0.333)}$		

Independent variables	Collinearity Statistics	
	Tolerance	VIF
Ages 18 to 64	.780	1.282
Arts support $^{(0.333)}$	.937	1.067
Presence of a PAC	.979	1.022
Coasts or no coasts	.815	1.227
DV: Population density (log_{10})		

Independent variables	Collinearity Statistics	
	Tolerance	VIF
Coasts or no coasts	.789	1.268
Population density (log_{10})	.549	1.822
Ages 18 to 64	.585	1.710
Arts support $^{(0.333)}$	.862	1.160
DV: Presence of a PAC		

Independent variables	Collinearity Statistics	
	Tolerance	VIF
Arts support $^{(0.333)}$	.857	1.167
Presence of a PAC	.965	1.036
Coasts or no coasts	.835	1.197
: Population density (log_{10})	.722	1.385
DV: Ages 18 to 64		

Independent variables	Collinearity Statistics	
	Tolerance	VIF
Population density (log_{10})	.562	1.780
Ages 18 to 64	.622	1.608
Arts support $^{(0.333)}$	.857	1.167
Presence of a PAC	.969	1.032
DV: Coasts or no coasts		

Appendix A – Tables 4a and 4b: Compare Means

In order to assess issues of endogeneity, a test (Table 4a) comparing the means of the two populations – downtowns with a performing arts center, and downtowns without a performing arts center – was performed using both the actual values of each dependent variable in three years: 1990, 2000, and 2007. A second test (Table 4b) compared the means of the percentage changes over three periods of time: 1990 to 2000, 2000 to 2007, and 1990 to 2007.

Although the focus of this research is on downtown revitalization between 2000-2007, using performing arts centers which opened between 2000 and 2006, the compare means tests also included the year 1990, to see if downtowns with and without PACs were already significantly different in vitalization levels before PACs entered the picture. If the two types of downtowns already differed in some important ways, according to the average values of their dependent variables, long before the performing arts centers were introduced, then the test results could provide a glimpse that other factors would likely influence their current level of vitality, than the presence or absence of a performing arts center.

Table 4a shows that in all three years (1990, 2000, and 2007), downtowns with performing arts centers had higher means and medians for each dependent variable measure.

Appendix A – Table 4a: Compare means – Actual values in 1990, 2000, and 2007

Table 4a: Compare means – Actual values in 1990, 2000, and 2007

Compare Means Actual Values	Residential Estabs 1990		Residential Estabs 2000		Residential Estabs 2007	
	No PAC	PAC	No PAC	PAC	No PAC	PAC
Mean	1794.3	2729.9	1934.1	2827.9	2120.7	3008.9
N	96	122	96	122	96	122
Std. Deviation	2230.0	3380.5	2129.5	3452.0	2742.6	3522.8
Median	1150.5	2144.5	1240.0	2091.5	1301.0	2235.0
Skewness	2.9	6.5	3.1	6.2	4.8	5.9
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

Compare Means Actual Values	Education 1990		Education 2000		Education 2007	
	No PAC	PAC	No PAC	PAC	No PAC	PAC
Mean	421.9	949.1	507.2	1208.2	630.4	1371.5
N	96	122	96	122	96	122
Std. Deviation	743.8	2116.4	753.2	2659.1	964.9	2942.8
Median	123.0	450.5	208.0	557.5	250.5	725.5
Skewness	3.0	7.7	2.8	7.6	3.4	7.9
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

Compare Means Actual Values	Median Household Inc. 1990		Median Household Inc 2000		Median Household Inc 2007	
	No PAC	PAC	No PAC	PAC	No PAC	PAC
Mean	29,749	34,633	31,132	36,004	29,533	35,837
N	96	122	96	122	96	122
Std. Deviation	15,290	19,300	13,616	19,293	14,129	20,784
Median	29,084	31,495	30,656	33,722	28,439	32,311
Skewness	.6	1.2	.5	1.3	.5	1.2
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

Compare Means Actual Values	Arts Rec 1990		Arts Rec 2000		Arts Rec 2007	
	No PAC	PAC	No PAC	PAC	No PAC	PAC
Mean	34.3	48.4	39.7	61.1	48.8	73.5
N	96	122	96	122	96	122
Std. Deviation	89.1	87.7	62.3	101.5	83.2	131.4
Median	9.0	22.5	19.0	33.5	25.0	43.0
Skewness	7.0	5.3	3.4	6.4	4.2	7.0
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

Compare Means Actual Values	Occupied Res 1990		Occupied Res 2000		Occupied Res 2007	
	No PAC	PAC	No PAC	PAC	No PAC	PAC
Mean	1459.5	2409.3	1764.5	2529.7	1836.6	2585.9
N	96	122	96	122	96	122
Std. Deviation	2108.4	2981.9	1974.6	3183.7	2245.0	3096.5
Median	794.5	1862.0	1095.5	1877.5	1194.5	1970.0
Skewness	2.7	6.2	2.9	6.3	3.8	5.9
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

Compare Means Actual Values	Population 1990		Population 2000		Population 2007	
	No PAC	PAC	No PAC	PAC	No PAC	PAC
Mean	4016.5	5601.8	4393.2	5734.7	4601.2	5884.2
N	96	122	96	122	96	122
Std. Deviation	5252.9	5524.9	4980.3	5681.5	5566.8	5760.8
Median	2178.0	4410.0	2655.0	4774.5	2718.0	4948.5
Skewness	2.7	3.7	2.6	4.2	3.1	3.9
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

Compare Means Actual Values	Index of 6 DVs 1990		Index of 6 DVs 2000		Index of 6 DVs 2007	
	No PAC	PAC	No PAC	PAC	No PAC	PAC
Mean	34128.3	41703.4	36109.3	43586.6	34936.2	43857.8
N	96	122	96	122	96	122
Std. Deviation	19265.0	24219.2	17270.5	24437.5	18729.1	26621.6
Median	30978.7	36061.7	34115.7	39160.0	31883.5	38886.8
Skewness	.8	1.4	.8	1.5	1.0	1.5
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

Appendix A – Table 4b: Compare means percentage change between 1990-2000, 2000-2007, and 1990-2007

Table 4b below compares the means and medians of the two downtown populations between three time periods – 1990 to 2000, 2000 to 2007, and 1990 to 2007 – to see if downtowns with a PAC showed greater increases of vitality levels over time, as compared with downtowns without a PAC. This compare means test assumes that if PACs entered their downtowns between 2000-2006, the percent changes between 2000-2007 would be greater in those downtowns than in downtowns without a PAC.

The compare means test results below show a greater increase in levels of vitality, as defined by the selected dependent variable measures in downtowns without a PAC than in downtown with a PAC, suggesting that all downtowns studied likely grew; and downtowns with a PAC may have already had a higher level of vitalization, and less room to grow before the PAC entered the picture.

Table 4b. Compare means percentage change between 1990-2000, 2000-2007, and 1990-2007

Compare Means Percent Change Over Time	**Residential Estabs 1990-2000**		**Residential Estabs 2000-2007**		**Residential Estabs 1990-2007**	
	No PAC	**PAC**	**No PAC**	**PAC**	**No PAC**	**PAC**
Mean	147.3	3.3	7.1	6.6	172.6	13.0
N	96	122	96	122	96	122
Std. Deviation	811.3	55.6	11.0	8.3	938.4	58.4
Median	3.8	4.0	3.2	5.8	11.9	9.2
Skewness	8.3	-3.7	2.6	1.5	8.5	03.1
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

Compare Means Percent Change Over Time	**Education 1990-2000**		**Education 2000-2007**		**Education 1990-2007**	
	No PAC	**PAC**	**No PAC**	**PAC**	**No PAC**	**PAC**
Mean	120.6	36.0	32.7	17.1	169.7	58.0
N	96	122	96	122	96	122
Std. Deviation	430.4	79.4	50.2	30.1	458.3	107.6
Median	34.5	29.3	19.8	15.7	59.9	43.6
Skewness	5.6	1.3	2.9	-1.7	5.2	.7
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

Compare Means Percent Change Over Time	Median HH Inc. 1990-2000		Median HHH Inc 2000-2007		Median HH Inc 1990-2007	
	No PAC	PAC	No PAC	PAC	No PAC	PAC
Mean	14.1	6.3	-8.0	-3.7	2.4	2.3
N	96	122	96	122	96	122
Std. Deviation	69.6	30.1	13.4	15.2	65.7	34.7
Median	6.1	4.8	-8.4	-3.8	1.3	1.9
Skewness	1.0	.5	.3	.4	.2	-.2
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

Compare Means Percent Change Over Time	Arts Rec 1990-2000		Arts Rec 2000-2007		Arts Rec 1990-2007	
	No PAC	PAC	No PAC	PAC	No PAC	PAC
Mean	75.7	62.1	27.7	23.0	22.9	83.0
N	96	122	96	122	96	122
Std. Deviation	244.6	192.1	50.7	57.9	470.2	271.3
Median	21.7	53.4	18.1	15.5	65.5	78.6
Skewness	4.7	1.3	.4	1.6	-2.5	-.7
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

Compare Means Percent Change Over Time	Occupied Res 1990-2000		Occupied Res 2000-2007		Occupied Res 1990-2007	
	No PAC	PAC	No PAC	PAC	No PAC	PAC
Mean	956.2	4.1	2.4	2.3	1025.6	7.9
N	96	122	96	122	96	122
Std. Deviation	2884.7	56.5	10.8	10.3	3078.4	58.2
Median	8.0	5.7	.7	1.7	12.7	7.0
Skewness	3.8	-3.6	1.4	.5	3.7	-3.8
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

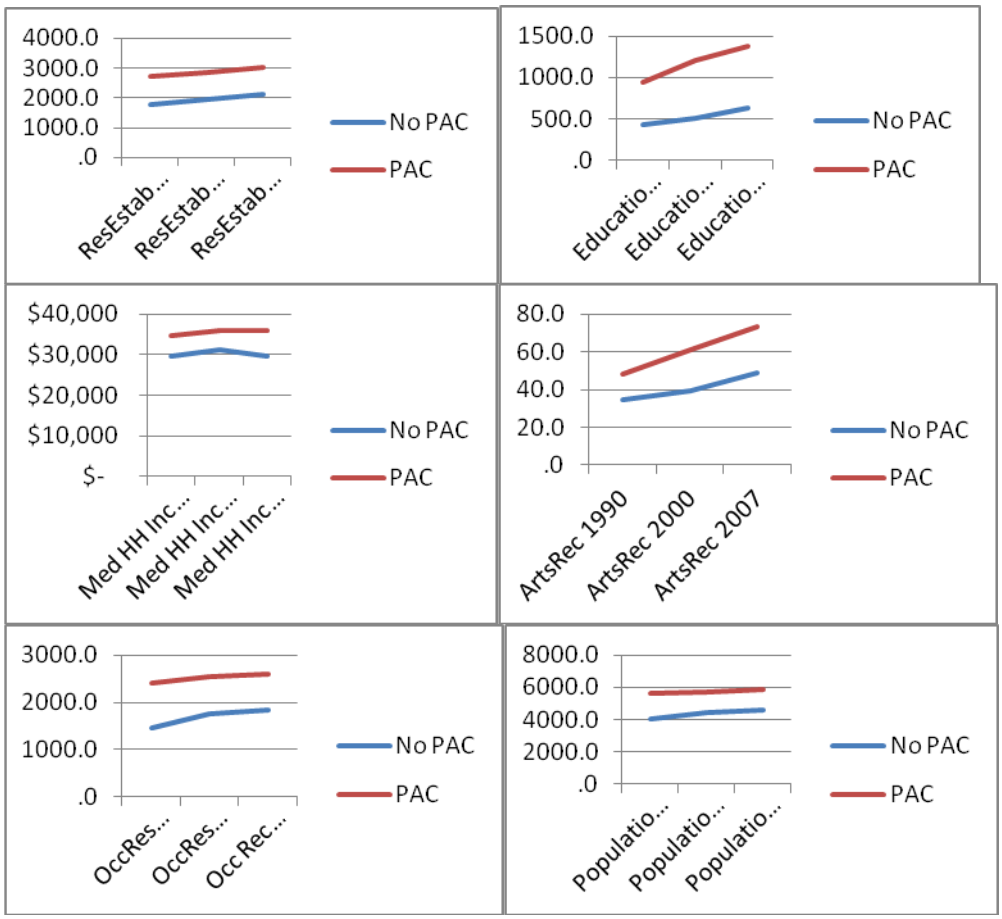
Compare Means Percent Change Over Time	Population 1990-2000		Population 2000-2007		Population 1990-2007	
	No PAC	PAC	No PAC	PAC	No PAC	PAC
Mean	239.9	3.9	2.3	2.3	259.0	6.7
N	96	122	96	122	96	122
Std. Deviation	1658.0	49.2	11.3	9.7	1807.6	51.6
Median	7.8	4.3	.7	.9	10.7	7.6
Skewness	9.3	-2.5	1.4	1.1	.9.4	-2.4
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

Compare Means Percent Change Over Time	Index of 6 DVs 1990-2000		Index of 6 DVs 2000-2007		Index of 6 DVs 1990-2007	
	No PAC	PAC	No PAC	PAC	No PAC	PAC
Mean	21.2	8.1	62.3	45.6	13.5	6.5
N	96	122	96	122	96	122
Std. Deviation	61.6	23.4	89.0	81.1	54.4	25.6
Median	7.0	5.5	42.1	36.7	2.5	3.5
Skewness	2.6	1.2	.67	.75	2.5	1.1
Std. Error of Skewness	.2	.2	.2	.2	.2	.2

Appendix A – Figure 7: Compare means of downtowns with vs. without a PAC

Figure 7 shows line graphs of each dependent variable measure, comparing downtowns with and without a PAC in each decade (1990, 2000, and 2007). With each dependent variable measure, downtowns with a PAC began with higher levels of revitalization characteristics than downtowns without a PAC.

Figure 7. Compare means of downtowns with vs. without a PAC



Appendix A – Table 5: Independent samples t-test

Table 5 below shows the results of an independent samples t-test, to assess whether the two populations – downtowns with a PAC and downtowns without a PAC – differed at a statistically significant level ($p \leq .05$) on the selected dependent variable measures. The selection of the independent samples t-test was based on the two separate populations, not linked to each other. The independent samples t-test was executed on the actual values of each dependent variable measure in three years (1990, 2000, 2007). A review of the F-values for equal variances assumed ($p > .05$) and equal variances not assumed ($p \leq .05$), along with the Sig. 2-tailed test results for each year's version of each dependent variable measure shows a large difference between the two populations.

Table 5. Independent samples t-test

		Levene's Test for Equality of Variance		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Res 1990	Equal variances assumed	.79	.38	2.3	216.0	.02	935.6	399.8	147.5	1723.7
	Equal variances not assumed			2.5	210.0	.01	935.6	381.4	183.7	1687.5
Res 2000	Equal variances assumed	1.71	.19	2.2	216.0	.03	893.8	401.7	102.0	1685.6
	Equal variances not assumed			2.3	205.2	.02	893.8	380.7	143.3	1644.4
Res 2007	Equal variances assumed	1.18	.28	2.0	216.0	.04	888.2	437.0	26.9	1749.6
	Equal variances not assumed			2.1	216.0	.04	888.2	424.4	51.8	1724.6
Educ 1990	Equal variances assumed	4.46	.04	2.3	216.0	.02	527.2	226.3	81.1	973.4
	Equal variances not assumed			2.6	157.0	.01	527.2	206.1	120.1	934.3
Educ 2000	Equal variances assumed	6.58	.01	2.5	216.0	.01	701.0	279.9	149.2	1252.8
	Equal variances not assumed			2.8	145.0	.01	701.0	252.7	201.5	1200.5
Educ 2007	Equal variances assumed	5.42	.02	2.4	216.0	.02	741.1	312.9	124.3	1357.8
	Equal variances not assumed			2.6	152.7	.01	741.1	284.0	179.9	1302.2

Table 5: Independent samples t-test, *continued*

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
MedHH Inc 1990	Equal variances assumed	2.52	.11	2.0	216.0	.04	4884.1	2407.9	138.1	9630.0
	Equal variances not assumed			2.1	216.0	.04	4884.1	2342.8	266.5	9501.7
MedHH Inc 2000	Equal variances assumed	6.13	.01	2.1	216.0	.04	4872.2	2323.5	292.5	9451.9
	Equal variances not assumed			2.2	213.6	.03	4872.2	2232.1	472.5	9271.9
Med HH Inc 2007	Equal variances assumed	7.72	.01	2.5	216.0	.01	6304.6	2477.6	1421.2	11187.9
	Equal variances not assumed			2.7	211.8	.01	6304.6	2370.7	1631.4	10977.7
ArtsRec 1990	Equal variances assumed	.49	.48	1.2	216.0	.24	14.1	12.0	-9.7	37.8
	Equal variances not assumed			1.2	202.6	.25	14.1	12.1	-9.7	37.9
ArtsRec 2000	Equal variances assumed	2.03	.16	1.8	216.0	.07	21.5	11.8	-1.8	44.7
	Equal variances not assumed			1.9	204.8	.06	21.5	11.2	-.6	43.5
ArtsRec 2007	Equal variances assumed	1.53	.22	1.6	216.0	.11	24.7	15.4	-5.6	55.0
	Equal variances not assumed			1.7	207.2	.09	24.7	14.67	-4.1	53.5
OccRes 1990	Equal variances assumed	.34	.56	2.6	216.0	.02	949.8	359.3	241.6	1658.0
	Equal variances not assumed			2.8	213.7	.01	949.8	345.2	269.3	1630.3
OccRes 2000	Equal variances assumed	1.45	.23	2.1	216.0	.04	765.2	371.0	34.0	1496.3
	Equal variances not assumed			2.2	205.6	.03	765.2	351.7	71.8	1458.6
OccRes 2007	Equal variances assumed	1.26	.26	2.0	216.0	.05	749.2	375.8	8.5	1490.0
	Equal variances not assumed			2.1	214.7	.04	749.2	362.1	35.6	1462.9
Pop. 1990	Equal variances assumed	.08	.77	2.1	216.0	.03	1585.2	737.7	131.3	3039.2
	Equal variances not assumed			2.2	208.4	.03	1585.2	733.2	139.7	3030.7
Pop. 2000	Equal variances assumed	.13	.72	1.8	216.0	.07	1341.5	734.6	-106.4	2789.4
	Equal variances not assumed			1.9	213.5	.06	1341.5	723.2	-84.0	2766.9
Pop. 2007	Equal variances assumed	.04	.85	1.7	216.0	.10	1283.0	767.5	-229.7	2795.6
	Equal variances not assumed			1.7	205.8	.10	1283.0	765.8	-226.8	2792.7

Appendix A –Table 6: Compare means of coastal vs. non-coastal downtowns

Table 6: Compare means of coastal vs. non-coastal downtowns

	Residential Estabs 2000-2007		**Education 2000-2007**		**Median HHinc 2000-2007**	
	Coastal downtowns	**Non-coastal downtowns**	**Coastal downtowns**	**Non-coastal downtowns**	**Coastal downtowns**	**Non-coastal downtowns**
Mean	2.987	8.632	32.836	19.743	-1.466	-7.557
N	70	148	70	148	70	148
Std. Deviation	6.264	10.297	34.016	34.016	15.044	13.954

Compare Means Percent Change Over Time	Arts & Rec 2000-2007		Occupied Res 2000-2007		Population 2000-2007	
	Coastal downtowns	Non-coastal downtowns	Coastal downtowns	Non-coastal downtowns	Coastal downtowns	Non-coastal downtowns
Mean	33.879	20.896	-.751	3.847	.190	3.286
N	70	148	70	148	70	148
Std. Deviation	55.205	589.4	7.859	11.283	7.130	11.476

Compare Means Percent Change Over Time	Index of 6 DVs 2000-2007	
	Coastal downtowns	Non-coastal downtowns
Mean	67.506	46.107
N	70	148
Std. Deviation	84.112	84.605

Appendix A – Table 7. Stepwise regressions of the downtown revitalization variables, adding PAC/No PAC on the second step

	Res Estabs (2000-2007)		Education (2000-2007)		Med HH income (2000-2007)		Arts Rec (2000-2007)	
Population density	-.151 (1.38)	-.280*** (1.50)	-.032 (6.07)	-.058 (6.69)	-.076 (2.04)	-.052 (2.36)	-.032 (8.05)	-.054 (9.13)
Ages 18-64	-.401 (.00)	-.119 (.00)	.022 (.00)	.077 (.00)	.214** (.00)	.090 (.00)	.373* (.00)	.270* (.00)
Coasts or no coasts	-.223** (.14)	-.263** (1.48)	.187* (6.51)	.172* (6.52)	.136 (2.25)	.227** (2.32)	.119 (8.69)	.115 *8.89)
Arts support	-.036 (.02)	-.069 (.02)	-.066 (.09)	-.033 (.09)	-.023 (.03)	-.159* (.03)	-.008 (.12)	-.044 (12)
PAC presence		-.064 (1.24)		-.165** (5.57)		.171* (2.05)		-.012 (7.57)
ResEstabs 2000	.495* (.00)	.331* (.00)						
Education 2000			-.131 (.00)	-.171 (.00)				
MedHH inc 2000					.193** (.00)	-.026 (.00)		
ArtsRec 2000							-.431* (.09)	-.316** (.10)
R^2	13.4	14.8	4.1	7.6	15.5	10.0	5.2	4.9
F	6.587***	6.086***	1.831	2.908**	7.772***	3.899**	2.317*	1.807

*Numbers in parentheses are standard errors. *p ≤ .05; **p#≤ .01; ***p ≤ .001. (n = 218)*

	OccRes (2000-2007)		Population (2000-2007)		Index (2000-2007)	
Population density	.180* (1.54)	-.245** (1.69)	-.195** (1.50)	-.360*** (1.70)	-.049 (13.03)	-.155 (14.36)
Ages 18-64	-.324 (.00)	-.196 (.00)	-.566 (.00)	-.487 (.00)	-.409 (.01)	-.305 (.01)
Coasts or no coasts	-.136 (1.63)	-.163* (1.68)	-.104 (1.65)	-.173* (1.73)	.146 (14.39)	.091 (15.09)
Arts support	-.071 (.024)	-.093 (.02)	-.001 (.025)	-.078 (.02)	-.057 (.21)	-.047 (.20)
PAC presence		-.036 (1.41)		.023 (1.45)		-.082 (12.68)
ResEstabs 2000					.780 (.02)	-1.44 (.04)
Education 2000					.260 (.01)	.139 (.01)
Med HH inc 2000					-.013 (.00)	-.133 (.00)
Arts Rec 2000					-.425* (.18)	-.322* (.19)
OccRes 2000	.376 (.00)	.313 (.00)			-.720 (.03)	1.57 (.05)
Population 2000			.700* (.00)	.787* (.00)	.542 (.00)	.453 (.01)
R^2	9.8	10.7	9.3	12.2	8.1	10.1
F	4.598**	4.202**	4.364**	4.877***	1.823	2.101*

*Numbers in parentheses are standard errors. *p ≤ .05; **p ≤ .01; ***p ≤ .001.*

Appendix A – Table 8. Correlations of independent and dependent variables in downtowns with a new PAC vs. downtowns with a historic PAC

Table 8. Correlations of independent and dependent variables in downtowns with a new PAC vs. downtowns with a historic PAC

Independent variables	Correlation(sig.)
Manufacturing labor 1990	-.108 (.022)
Manufacturing labor 2000	-.216 (.017)
Manufacturing labor 2007	-.219 (.015)
Total labor force 1990	.228 (.012)
Total labor force 2000	.231 (.010)
Total labor force 2007	-.270 (.003)
Percent change total labor force 2000-2007	-.197 (.030)
Ages 18 – 64 in 1990	-.257 (.004)
Ages 18 – 64 in 2000	-.277 (.002)
Ages 18 – 64 in 2007	-.282 (.002)
Residential establishments 1990	-.230 (.011)
Residential establishments 2000	-.221 (.015)
Residential establishments 2007	-.235 (.009)
Education 1990	-.254 (.005)
Education 2000	-.244 (.007)
Education 2007	-.242 (.007)
Arts and recreation employees 1990	-.262 (.004)
Arts and recreation employees 2000	-.219 (.015)
Arts and recreation employees 2007	-.201 (.026)
Occupied residential units 1990	-.237 (.008)
Occupied residential units 2000	-.231 (.011)
Occupied residential units 2007	-.246 (.006)
Population 1990	-.260 (.004)
Population 2000	-.275 (.002)
Population 2007	-.287 (.001)
Index of 6 dependent variable measures 1990	-.203 (.025)
Index of 6 dependent variable measures 2000	-.206 (.023)

Historic PAC downtowns = 1, New PAC downtowns = 0 (n = 122)

Appendix A – Table 9. Compare means of downtowns with a new PAC vs. downtowns with a historic PAC in percent changes of growth over time

TABLE 9. Compare means of downtowns with a new PAC versus downtowns with a historic PAC in percent changes of growth over time

Compare means	**Res Estabs 1990-2000**		**Res Estabs 2000-2007**		**Res Estabs 1990-2007**	
% change over time	**New**	**Historic**	**New**	**Historic**	**New**	**Historic**
Mean	8.35	1.11	7.33	6.28	17.72	10.22
N	37	85	37	85	37	85
Std. Deviation	52.68	57.01	6.40	9.04	73.56	58.56

Compare means	**Education 1990-2000**		**Education 2000-2007**		**Education 1990-2007**	
% change over time	**New**	**Historic**	**New**	**Historic**	**New**	**Historic**
Mean	42.56	33.11	17.46	16.90	64..83	55.04
N	37	85	37	85	37	85
Std. Deviation	73.56	82.00	31.51	29.63	101.26	110.65

Compare means	**Med HH Inc1990-2000**		**Med HH Inc 2000-2007**		**Med HH Inc1990-2007**	
% change over time	**New**	**Historic**	**New**	**Historic**	**New**	**Historic**
Mean	11.32	4.04	-3.25	-3.92	7.76	-.14
N	37	85	37	85	37	85
Std. Deviation	35.27	27.48	12.66	16.24	33.73	35.08

Compare means	**Arts & Rec 1990-2000**		**Art & Rec 2000-2007**		**Arts & Rec 1990-2007**	
% change over time	**New**	**Historic**	**New**	**Historic**	**New**	**Historic**
Mean	32.98	74.75	9.86	28.70	57.57	94.09
N	37	85	37	85	37	85
Std. Deviation	154.50	205.91	46.40	61.62	171.05	305.05

Compare means	**Occ Res 1990-2000**		**Occ Res 2000-2007**		**Occ Res 1990-2007**	
% change over time	**New**	**Historic**	**New**	**Historic**	**New**	**Historic**
Mean	10.29	1.42	3.18	1.94	14.03	5.17
N	37	85	37	85	37	85
Std. Deviation	53.51	57.92	7.74	11.32	53.77	60.13

Compare means	**Population 1990-2000**		**Population 2000-2007**		**Population 1990-2007**	
% change over time	**New**	**Historic**	**New**	**Historic**	**New**	**Historic**
Mean	11.57	.53	2.81	2.02	14.56	3.33
N	37	85	37	85	37	85
Std. Deviation	48.92	49.17	8.97	9.98	51.41	51.58

Appendix A – Table 10. Correlations with downtown square miles in downtowns with vs. without a PAC

Independent and dependent variables correlated with downtown square miles	**PAC downtowns(sig.)** ***n = 122***	**No PAC downtowns(sig.)** ***n = 96***
Population density in 1990	-.199 (.028)	-
Population density in 2000	-.293 (.001)	-
Population density in 2007	-.290 (.001)	-
Percent change population density 2000-2007	.242 (.007)	-
Manufacturing labor 1990	.319 (.000)	-
Manufacturing labor 2000	.310 (.001)	.305 (.002)
Manufacturing labor 2007	.267 (.003)	.251 (.014)
Total labor 2000	-	.393 (.000)
Total labor 2007	-	.342 (.001)
Total labor as % of total population 2000	.222 (.014)	-
Ages 18 – 64 1990	-	.343 (.001)
Ages 18 – 64 2000	-	.389 (.000)
Ages 18 – 64 2007	-	.224 (.001)
Ages 18 – 64 as % of total population 2000	.252 (.005)	-
Ages 18 – 64 as % of total population 2007	-.254 (.005)	-
Residential establishments 1990	-	.303 (.003)
Residential establishments 2000	-	.345 (.001)
Residential establishments 2007	-	.269 (.008)
Percent change residential estabs 2000-2007	.250 (.006)	.303 (.003)
Business establishments 2000	-.315 (.000)	.345 (.001)
Business establishments 2007	-.306 (.001)	.269 (.008)
Percent change business establishments 2000-2007	-	-.305 (.003)
Percent change education 2000-2007	.185 (.041)	-
Education 1990	-	.316 (.002)
Median household income 1990	.187 (.039)	.205 (.046)
Median household income 2000	.229 (.011(	-
Median household income 2007	.233 (.010)	-
Arts and recreation employees 2000	-	.304 (.003)
Occupied housing 2000	-	.354 (.000)
Occupied housing 2007	-	.285 (.005)
Percent change occupied housing 2000-2007	.278 (.002)	-
Population 1990	-	.346 (.001)
Population 2000	-	.385 (.000)
Population 2007	.205 (.024)	.334 (.001)
Percent change population 2000-2007	.279 (.002)	-
Index of 6 dependent variable measures 2000-2007	.219 (.016)	-
Index of 6 dependent variable measures 1990	-	.244 (.017)
Index of 6 dependent variable measures 2000	.218 (.016)	.263 (.010)
Index of 6 dependent variable measures 2007	-	.249 (.014)

Appendix A. – Table 11. Correlations with the number of arts organizations in downtowns with vs. without a PAC

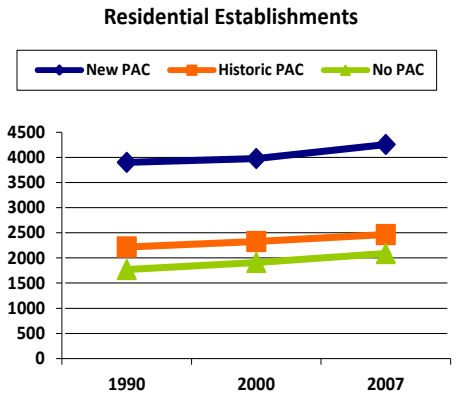
Independent and dependent variables correlated with the number of arts organizations	**PAC downtowns(sig.)** ***n = 122***	**No PAC downtowns(sig.)** ***n = 96***
Population density 1990	.375 (.000)	-
Population density 2000	.314 (.000)	-
Population density 2007	.305 (.001)	-
Manufacturing labor force 1990	-.273 (.002)	-
Manufacturing labor force 2000	-.196 (.030)	-
Manufacturing labor force 2007	-.248 (.006)	-
Manufacturing labor force % of total labor 1990	-	-.278 (.006)
Manufacturing labor force % of total labor 2000	-	-.232 (.023)
Total labor force 1990	.252 (.005)	-
Total labor force 2007	.328 (.000)	-
Total labor force % of total pop. 1990	-	.205 (.045)
Total labor force % of total pop. 2000	-	.271 (.008)
Total labor force % of total pop. 2007	-	.244 (.017)
Percent change total labor force 2000-2007	.251 (.005)	-
Ages 18 to 64 1990	.349 (.000)	-
Ages 18 to 64 2000	.388 (.000)	-
Ages 18 to 64 2007	.386 (.000)	-
Ages 18 to 64 as % of total population 1990	.422 (.000)	.305 (.002)
Ages 18 to 64 as % of total population 2000	.450 (.000)	.366 (.000)
Ages 18 to 64 as % of total population 2007	.465 (.000)	.417 (.000)
Total arts revenue in 2000	.793 (.000)	.705 (.000)
Average dollar spent on the arts 2000	.491 (.000)	.277 (.006)
Residential establishments 1990	.310 (.001)	-
Residential establishments 2000	.382 (.000)	-
Residential establishments 2007	.396 (.000)	-
Percent change in residential estabs 1990-2000	.251 (.005)	-
Percent change in residential estabs 1990-2007	.184 (.043)	-
Business establishments 2000	.227 (.012)	-
Education level 2000	.178 (.050)	-
Education level 2007	.180 (.047)	-
Percent change in education level 1990-2000	.178 (.050)	-
Percent change in education level 1990-2007	.250 (.005)	-
Percent change median household inc 2000-2007	.317 (.000)	-
Percent change median household inc 1990-2007	.200 (.027)	-
Arts and recreation employees 1990	.210 (.020)	-
Arts and recreation employees 2000	.432 (.000)	-
Arts and recreation employees 2007	.430 (.000)	-
Percent change arts and rec employees 1990-2000	.296 (.001)	-
Percent change arts and rec employees 1990-2007	.228 (.012)	-
Occupied housing units 1990	.287 (.001)	-
Occupied housing units 2000	.365 (.000)	-
Occupied housing units 2007	.373 (.000)	-
Percent change occupied housing units 1990-2000	.248 (.006)	-
Percent change occupied housing units 1990-2007	.232 (.010)	-
Population 1990	.242 (.007)	-
Population 2000	.306 (.001)	-
Population 2007	.289 (.001)	-

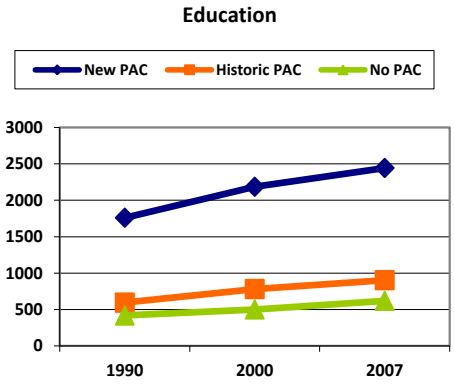
Appendix A – Table 12. Binary Logistic Regression Results for PAC Readiness

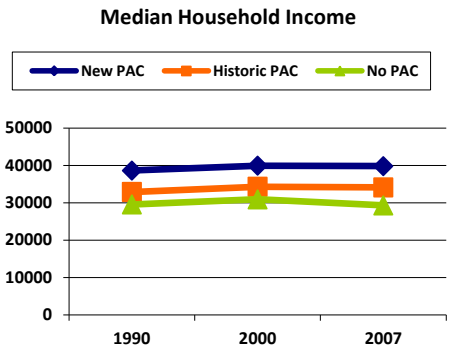
TABLE 12. Binary Logistic Regression Results for PAC Readiness

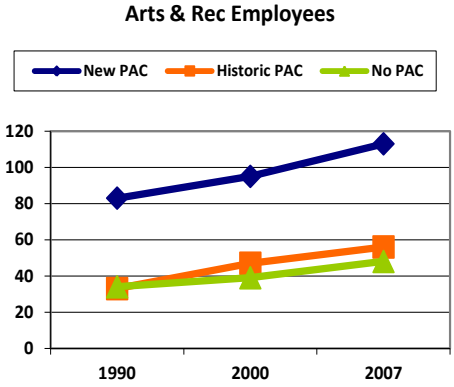
Downtown characteristics in 2000	**B**	**SE**	**Wald**	**df**	**Sig.**	**Exp(B)**
Downtown square miles	.105	.063	2.824	1	.093	1.111
Population density	.000	.000	4.731	1	.030	1.000
Manufacturing labor	.001	.001	.344	1	.557	1.001
Total Labor	.000	.001	.216	1	.642	1.000
Ages 18 to 64	.001	.001	4.884	1	.027	1.001
Coasts	.077	.500	.024	1	.877	1.080
Arts support in metro	.000	.000	3.919	1	.048	1.000
Arts orgs in metro	.021	.010	4.201	1	.040	1.021
Residential Estabs	.001	.001	1.507	1	.220	1.001
Business Estabs	.000	.000	.003	1	.956	1.000
Education	.001	.001	2.184	1	.139	1.001
Median HH Income	.000	.000	.033	1	.856	1.001
Arts & Rec employees	-.013	.007	4.050	1	.044	1.000
Occupied housing units	-.002	.002	.983	1	.322	.987
Population	-.001	.001	3.817	1	.051	.999
Constant	-.502	.689	.530	1	.467	.606

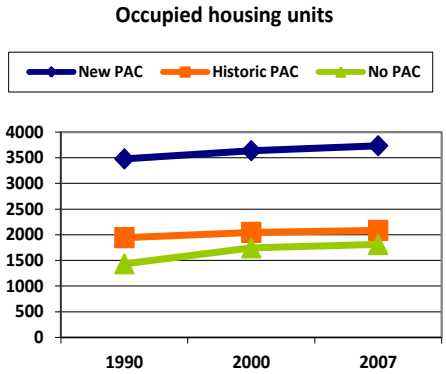
Appendix A – Figure 8. Compare means of dependent variable measures in downtowns with new PACs, historic PACs, and no PACs

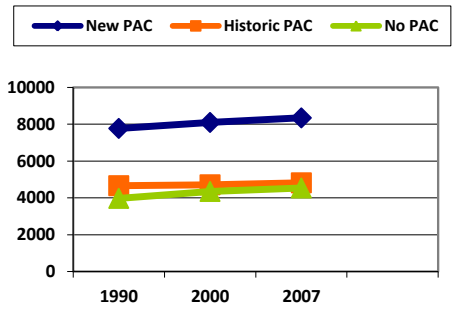












Appendix A – Table 13. Binary Logistic Regression Results for Historic PAC downtowns vs. new PAC downtowns

TABLE 13. Binary Logistic Regression Results for Historic PAC downtowns vs. new PAC downtowns

Downtown characteristics in 2000	**B**	**SE**	**Wald**	**df**	**Sig.**	**Exp(B)**
Downtown square miles	.014	.020	.496	1	.481	1.014
Population density	.000	.000	2.306	1	.129	.1000
Manufacturing labor	-.001	.001	.836	1	.361	.999
Total Labor	.001	.001	3.870	1	.049	1.001
Ages 18 to 64	.000	.001	.398	1	.528	1.000
Coasts	2.207	.836	6.967	1	.008	9.087
Arts support in metro	.000	.000	.128	1	.721	1.000
Arts orgs in metro	-.002	.004	.172	1	.679	.998
Residential Estabs	.002	.001	1.579	1	.209	1.002
Business Estabs	.001	.001	2.266	1	.132	1.001
Education	-.002	.001	3.849	1	.050	.998
Median HH Income	.000	.000	.336	1	.562	1.000
Arts & Rec employees	.000	.009	.000	1	.992	1.000
Occupied housing units	-.001	.002	.239	1	.625	.999
Population	-.001	.001	4.255	1	.039	.999
Constant	1.094	.929	1.386	1	.239	2.986

Appendix A – Table 14. Means and medians of characteristics in downtowns with a PAC

Table 14. Means and medians of characteristics in downtowns with a PAC

Downtown square miles	**All downtowns with a PAC**	**Historic PAC downtowns**	**New PAC downtowns**
Mean	7.07	7.33	6.62
Median	1.50	1.34	1.78
Range	132.96	132.96	72.44
N	122	85	37

Population density	**All downtowns with a PAC**	**Historic PAC downtowns**	**New PAC downtowns**
Mean	3896.99	3445.81	4877.51
Median	2666.95	2615.85	2905.30
Range	23370.5	20085.9	23342.2
N	122	85	37

Ages 18 to 64	All downtowns with a PAC	Historic PAC downtowns	New PAC downtowns
Mean	3888.70	3105.86	5713.14
Median	3027.50	2682.50	4119.00
Range	39566	15071	39293
N	122	85	37

Arts support in metro area	**All downtowns with a PAC**	**Historic PAC downtowns**	**New PAC downtowns**
Mean	$365,956.10	$351,100.10	$405,870.78
Median	$206,808.050	$205,368.50	$249,597.00
Range	$3,102,131	$3,102,131	$2,399,245
N	122	85	37

Number of arts organizations in metro area	**All downtowns with a PAC**	**Historic PAC downtowns**	**New PAC downtowns**
Mean	52.83	41.31	80.16
Median	16.00	14.50	24.00
Range	555	555	511
N	122	85	37

Arts & recreation employees	**All downtowns with a PAC**	**Historic PAC downtowns**	**New PAC downtowns**
Mean	61.11	46.92	94.62
Median	33.50	32.00	39.00
Range	971	227	971
N	122	85	37

Appendix A – Table 14. Means and medians of characteristics in downtowns with a PAC, continued

Population	All downtowns with a PAC	Historic PAC downtowns	New PAC downtowns
Mean	5734.68	4718.62	8093.73
Median	4774.50	4407.50	6246.00
Range	48923	23962	48576
N	122	85	37

APPENDIX B – OVERALL PAC HEALTH

Appendix B – Table 15. Descriptive statistics

Table 15 shows the means and medians for the variables of Hypothesis 2 – Overall PAC health. The wide range of metropolitan and micropolitan areas ranged in population from 7,608,070 (Washington, D.C.) to 6,882 (Minden, NE). The four independent variables of education, median household income, number of seats, and program revenue show both the untransformed and the transformed values. Transformation of the independent variables of education, median household income, and number of seats moved the original positive skew to less skewed, and more normally distributed values. Transformation of the independent value of program revenue moved toward a more negative skew, but allowed for a more normal distribution, which improved the regression.

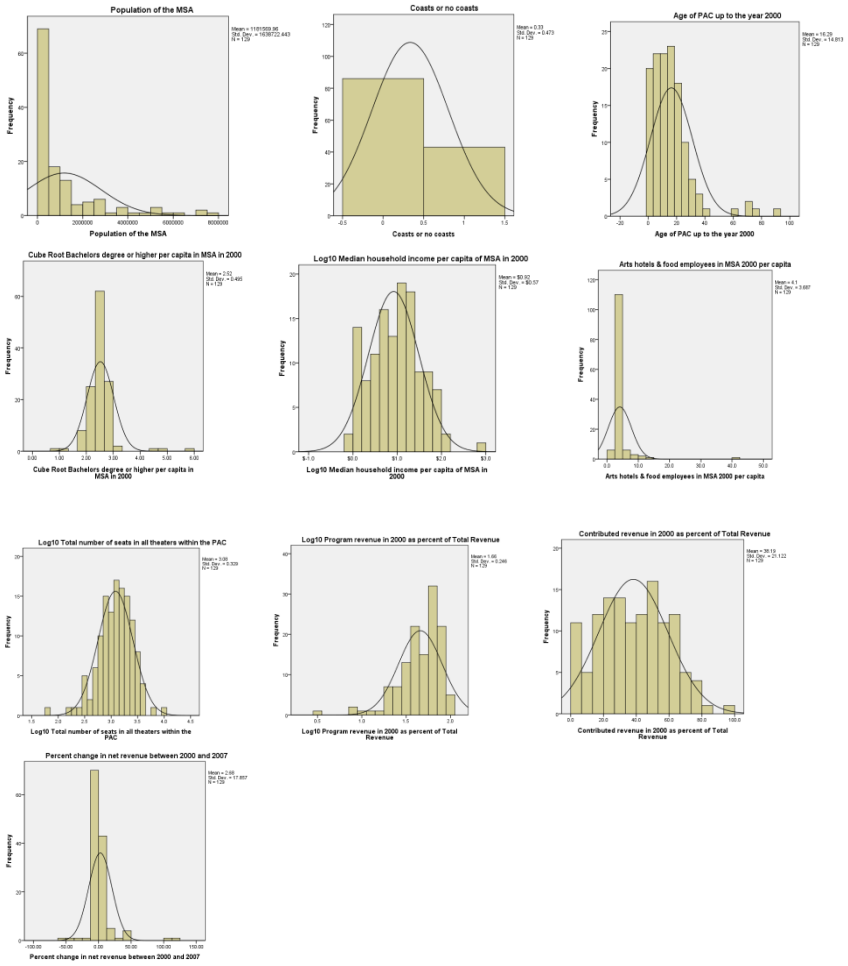
Table 15. Descriptive statistics

	Pop. of metro	Coasts or no coasts	PAC age	Untransformed	Transformed	Untransformed	Transformed
Mean	1181569.96	0.33	16.29	227582.8	2.52	4280.7	0.92
Median	459479.00	0.00	14.00	63119.0	2.49	42215.0	1.00
Std. deviation	1638722.44	0.47	14.81	358215.5	0.49	8089.9	5.70
Skewness	2.17	0.72	2.46	2.66	3.00	.462	0.21
Std. Error of Skew	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Kurtosis	4.36	-1.51	8.37	7.94	19.08	-0.20	-0.20
Std. Error of Kurtosis	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Range	7601188	1	91.00	1867372	4.85	37427	2.90
N	129	129	129	129	129	129	129

	ArtsHot Food	No. of seats log 10		Program Rev log10		Contributed Rev	*Net rev % 2000-2007*
		Untransformed	Transformed	Untransformed	Transformed		
Mean	4.10	1554.5	3.08	51.40	1.66	38.19	*2.68*
Median	3.6	1300.0	3.10	51.92	1.70	37.83	*-0.66*
Std. deviation	3.69	1233.72	0.33	21.80	0.25	21.13	*17.86*
Skewness	8.68	3.09	-0.57	-0.01	-1.55	0.10	*3.54*
Std. Error of Skew	0.21	0.21	0.21	0.21	0.21	0.21	*0.21*
Kurtosis	86.96	16.99	1.41	-0.81	3.89	-0.66	*22.51*
Std. Error of Kurtosis	0.42	0.42	0.42	0.42	0.42	0.42	*0.42*
Range	2.90	9930	2.20	94.1	1.50	96.80	*177.35*
N	129	129	129	129	129	129	*129*

Appendix B – Figure 9. Histograms of variables

Figure 9 shows histograms, along with their normal distribution curves for each independent variable and the dependent variable for Hypothesis 2 – Overall PAC health. These histograms provide a visual reference of the wide range in each independent variable and the dependent variable. All scalable variables were leptokurtic, but fairly normally distributed.



Appendix B – Table 16. Correlations

The correlation matrices below show correlations of each independent variable with the other independent variables and with the dependent variable. The following independent variables were correlated with each other: PAC age was correlated with population of the metro area, coasts or no coasts, median household income, and seats in the PAC log. Median household income was also correlated with population of the metro area. The independent variable of coasts or no coasts was also correlated with seats in the PAC $\log_{10}$. Program and contributed revenues were correlated with each other, as well as the dependent variable of net revenue 2000-2007. The independent variable of education was also correlated with the dependent variable of net revenue 2000-2007.

Table 16. Correlations with 2000 variables

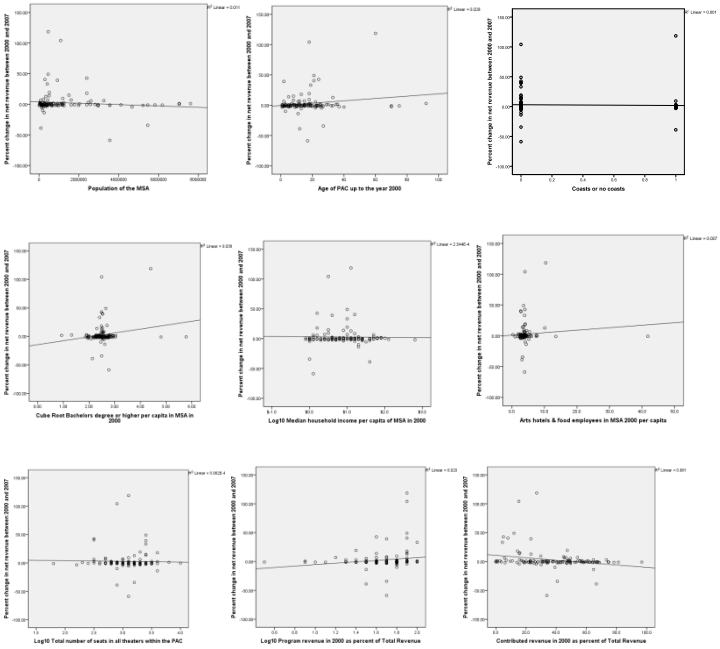
	Population 2000	**Coasts no coasts 2000**	**PAC Age 2000**	**Educ.$^{0.333}$ 2000**	**MedHHInc $\log_{10}$ 2000**
Population in 2000		-.063	.202 *	.163	-.783 ***
Coasts or no coasts in 2000	-.063		.188 *	.154	.051
PAC Age in 2000	.202 *	.188 *		.166	-.216 *
Education$^{0.333}$ in 2000	.163	.154	.166		-.108
Median household income $\log_{10}$ in2000	-.783 ***	.061	-.216 **	-.108	

	ArtsHotelsFood 2000	**Seats $\log_{10}$ 2000**	**Prog rev $\log_{10}$ 2000**	**Contrib rev 2000**	**Net rev 2000-2007**
Population in 2000	-.068	.348 ***	.011	-.086	-.103
Coasts or no coasts in 2000	-.065	.035	.029	.051	-.034
PAC Age in 2000	.110	.221 *	.040	.000	.160
Education$^{0.333}$ in 2000	.740 ***	.178 *	-.091	.183 *	.189 *
Median household inc $\log_{10}$ in 2000	.074	-.494 ***	-.024	.129	-.016
ArtsHotelsFood in 2000		.072	-.100	.164	.083
Seats $\log_{10}$ in 2000	.072		.169	-.138	-.022
Program revenues $\log_{10}$ in 2000	-.100	.136		-.810 ***	.169
Contributed revenues in 2000	.164	-.138	-.810 ***		-.248 **
Net revenues 2000-2007	.083	-.022	.169	-.248 **	

*p ≤ .05; **p ≤ .01; ***p ≤ .001

Appendix B – Figure 10. Scatterplots

Scatterplots of each independent variable with the dependent variable showed weak relationships. The strongest associations with the dependent variable were found in the independent variables of population of the metropolitan area (negative), age of the PAC (positive), education levels (positive), arts, hotels, and food employees (negative), and contributed revenue (negative).



Appendix B – Table 9. Multicollinearity

Multicollinearity tests were run on the independent variables. The tolerance levels were greater than .10, and conversely, the variance inflation factors ranged between 1.040 and 3.196; all scores that suggested the linear combinations of the independent variables were likely not measuring the same effects in different ways.

Table 9. Multicollinearity

Independent variables	Collinearity Statistics	
	Tolerance	VIF
Population of the metro	.360	2.779
Education$^{0.333}$	.356	2.810
Median household income Log_{10}	.326	3.063
ArtsHotelsFood	.371	2.693
Coasts or no coasts	.836	1.196
Age of PAC	.878	1.139
Number of seats in PAC Log_{10}	.705	1.418
Program revenue Log_{10}	.962	1.040

DV: Contributed revenue

Independent variables	Collinearity Statistics	
	Tolerance	VIF
Age of PAC	.911	1.097
Number of seats in PAC Log_{10}	.705	1.418
Program revenue Log_{10}	.325	3.076
Contributed revenue	.314	3.182
Population of the metro	.365	2.737
Education$^{0.333}$	.390	2.566
Median household income Log_{10}	.321	3.115
ArtsHotelsFood	.413	2.420

DV: Coasts or no coasts

Independent variables	Collinearity Statistics	
	Tolerance	VIF
Education$^{0.333}$	.371	2.697
Median household income Log_{10}	.660	1.516
ArtsHotelsFood	.387	2.585
Coasts or no coasts	.846	1.182
Age of PAC	.880	1.136
Number of seats in PAC Log_{10}	.711	1.406
Program revenue Log_{10}	.324	3.089
Contributed revenue	.313	3.196

DV: Population of the metro

Independent variables	Collinearity Statistics	
	Tolerance	VIF
Number of seats in PAC Log_{10}	.713	1.402
Program revenue Log_{10}	.325	3.078
Contributed revenue	.314	3.186
Population of the metro	.362	2.764
Education$^{0.333}$	.349	2.861
Median household income Log_{10}	.322	3.105
ArtsHotelsFood	.375	2.668
Coasts or no coasts	.867	1.153

DV: Age of the PAC

Independent variables	Collinearity Statistics	
	Tolerance	VIF
Median household income Log_{10}	.321	3.115
ArtsHotelsFood	.926	1.080
Coasts or no coasts	.929	1.076
Age of PAC	.876	1.142
Number of seats in PAC Log_{10}	.710	1.409
Program revenue Log_{10}	.326	3.069
Contributed revenue	.319	3.137
Population of the metro	.382	2.618

DV: Education$^{0.333}$

Independent variables	Collinearity Statistics	
	Tolerance	VIF
Program revenue Log_{10}	.327	3.060
Contributed revenue	.313	3.195
Population of the metro	.363	2.756
Education$^{0.333}$	.352	2.845
Median household income Log_{10}	.375	2.668
ArtsHotelsFood	.371	2.693
Coasts or no coasts	.833	1.200
Age of the PAC	.885	1.129

DV: Number of seats in PAC Log_{10}

Independent variables	Collinearity Statistics	
	Tolerance	VIF
ArtsHotelsFood	.372	2.692
Coasts or no coasts	.833	1.200
Age of PAC	.879	1.138
Number of seats in PAC Log_{10}	.824	1.214
Program revenue Log_{10}	.329	3.036
Contributed revenue	.318	3.141
Population of the metro	.740	1.352
$Education^{0.333}$	.349	2.862

DV: Median household income Log_{10}

Independent variables	Collinearity Statistics	
	Tolerance	VIF
Coasts or no coasts	.927	1.078
Age of PAC	.884	1.131
Number of seats in PAC Log_{10}	.705	1.418
Program revenue Log_{10}	.324	3.085
Contributed revenue	.313	3.194
Population of the metro	.375	2.667
$Education^{0.333}$	.872	1.147
Median household income Log_{10}	.321	3.114

DV: ArtsHotelsFood

Independent variables	Collinearity Statistics	
	Tolerance	VIF
Contributed revenue	.930	1.075
Population of the metro	.360	2.779
$Education^{0.333}$	.352	2.844
Median household income Log_{10}	.327	3.062
ArtsHotelsFood	.372	2.690
Coasts or no coasts	.836	1.196
Age of the PAC	.879	1.138
Number of seats in PAC Log_{10}	.712	1.405

DV: Program revenue Log_{10}

Appendix B. Table 10. Regression comparisons

Original regression with IVs 2000 (n = 129)			Revised regression with some IVs showing change 2000-2007 (n = 121)		
Population 2000	-.439 (.00)	***	.516 (.00)	*	Change in population 2000-2007
Coasts or no coasts 2000	-.156 (3.29)		-.064 (3.01)		Costs or no coasts 2000
Age of the PAC up to year 2000	.206 (.10)	*	.118 (.10)		Age of the PAC up to year 2000
Education level$^{0.333}$ in 2000	.526 (4.87)	***	.157 (3.77)		Education level$^{0.333}$ in 2000
Median HH inc$_{log10}$ in 2000	-.250 (4.41)		-.738 (.00)	*	Change in median HH inc 2000-2007
Arts, hotels, & food employees 2000	-.283 (.63)	*	-.498 (.00)	*	Change in arts, hotels, food employees 2000-2007
Number of sears in a PAC$_{log10}$ in 2000	-.145 (5.20)		-.067 (.00)		Number of seats in a PAC$_{log10}$ in 2000
Program revenue of PAC$_{log10}$ in 2000	-.153 (10.39)		-.228 (9.39)		Program revenue of a PAC$_{log10}$ in 2000
Contributed revenue of PAC in 2000	-.439 (.12)	**	-.502 (.11)	**	Contributed revenue of a PAC in the year 2000
PAC net revenue in 2000 – actual value	*-.011* *(.90)*		*-.132* *(.00)*		*PAC net revenue in 2000 – actual value*
R^2 (%)	25.0		17.1		R^2 (%)
F	3.936	***	2.214	*	F

Numbers in parentheses are standard errors. *p≤.05; **p≤.01; ***p≤.001

APPENDIX C – DOWNTOWNS AND PERFORMING ARTS CENTERS STUDIED

Table 19. Downtowns with PACs that opened 2000-2006

State	City	Performing arts center
AL	Mobile	Mobile Saenger Theater
AZ	Mesa	Mesa Arts Center
CA	Antioch	El Campanil Theatre
CA	Arroyo Grande	Clark Center
CA	Carmel-by-the-Sea	Sunset Cultural Center
CA	Costa Mesa	Segerstrom Center
CA	Los Angeles	Walt Disney Concert Hall
CA	Mill Valley	142 Throckmorton Theatre
CA	Monterey	Golden State Theater
CA	Redding	Cascade Theatre
CA	Redondo Beach	Redondo Beach Center
CA	Redwood City	Fox Theatre
CA	Yountville	Lincoln Theatre
CO	Boulder	Dairy Center for the Arts
CT	Waterbury	Palace Theater
DC	Washington	Atlas Performing Arts Center
DE	Milton	Milton Theatre
DE	Dover	Schwartz Center for the Arts
FL	Fort Pierce	Sunrise Theatre
FL	Jupiter	Maltz Jupiter Theater
FL	Miami	Adrienne Arsht Center
FL	Sanford	Helen Stairs Milane Theater
FL	Gulfport	Catherine Hickman Theater
GA	Calhoun	Harris Arts Center
GA	Columbus	River Center
GA	Savannah	Lucas Theatre
IA	Sioux City	Orpheum Theatre
IA	Iowa City	Englert Civic Theatre
IL	Marion	Marion Cultural Center
IL	Crystal Lake	Raue Center for the Arts
IL	Waukegan	Genesee Theatre
IL	Springfield	Hoogland Center for the Arts
IL	Bloomington	Bloomington Center
IL	Rockford	Coronado Center
IL	Chicago	Harris Theater for Music & Dance
IN	Greenfield	HJ Ricks Center for the Arts
IN	South Bend	Morris Performing Arts Center
KS	Salina	Stiefel Theatre
KY	Glasgow	Plaza Theatre
KY	Paducah	Luther F. Carson Center
LA	Ruston	Dixie Center for the Arts

Table 19. Downtowns with PACs that opened 2000-2006, *continued*

State	City	Performing Arts Center
LA	Alexandria	Coughlin-Saunders Center
LA	New Iberia	Essanee Theater
LA	Baton Rouge	Shaw Center for the Arts
MA	Great Barrington	Mahaiwe Performing Arts Center
MA	Adams	Adams Theatre
MA	Springfield	City Stage & Symphony Hall
MD	Baltimore	France Merrick Performing Arts Center
MD	Rockville	Music Center at Strathmore
ME	Knox	Strand Theatre
ME	Lewiston	Franco-American Heritage Center
MI	Saugatuck	Saugatuck Center for the Arts
MI	Charlotte	Charlotte Performing Arts Center
MI	Fremont	Dogwood Center for the Performing Arts
MI	Holland	Perk Theatre
MI	Saginaw	Temple Theatre
NC	Highlands	Martin-Lipscomb Performing Arts Center
NC	Clayton	Clayton Center
NC	Raleigh	Progress Energy Center
NE	Minden	Minden Opera House
NE	Omaha	Orpheum Theater
NH	Berlin	St. Kieran Community Arts Center
NH	Lebanon	Lebanon Opera House
NJ	Englewood	Bergan Performing Arts Center
NJ	South Orange	South Orange Performing Arts Center
NM	Santa Fe	Lensic Theater
NM	Gallup	El Morro Theater
NM	Albuquerque	KiMo Theatre
NY	Auburn	Auburn Public Theater
NY	Kingston	Ulster Performing Arts Center
NY	Bay Shore	Boulton Center for the Arts
NY	Albany	Palace Performing Arts Center
NY	Rochester	Rochester Auditorium
OH	Dayton	Benjamin & Marian Schuster Center
OH	Akron	Akron Civic Theatre
OH	Newark	Midland Theatre
OK	Oklahoma City	Civic Center Music Hall
OK	Miami	Coleman Theatre
OR	Coos Bay	Egyptian theatre
OR	Salem	Elsinore Theatre
OR	Hillsboro	Walters Cultural Arts Center
OR	Portland	Portland Center for the Performing Arts
PA	Media	Media Theatre for the Performing Arts

Table 19. Downtowns with PACs that opened 2000-2006, *continued*

State	City	Performing Arts Center
PA	Reading	Sovereign Center for the Performing Arts
PA	State College	State Theatre
PA	Philadelphia	Kimmel Center for the Performing Arts
RI	Providence	Providence Performing Arts Center
TN	Somerville	Fair Theatre
TN	Greeneville	Niswonger Performing Arts Center
TN	Knoxville	Historic Tennessee Theatre
TN	Memphis	Cannon Center for the Performing Arts
TX	Amarillo	Globe-News Performing Arts Center
TX	Wichita Falls	Kemp Center for the Arts
TX	Odessa	Ector Theater
TX	New Braunfels	Brauntex Theater
TX	Richardson	Charles E. Eisemann Center
TX	Corsicana	Palace Theater
TX	San Antonio	Woodlawn Theatre
TX	Houston	Hobby Center for the Performing Arts
TX	Arlington	Metro Center
UT	Salt Lake City	Capitol Theatre
VA	Luray	Regional Center for Performing Arts
VA	Lynchburg	Academy of Fine Arts
VA	Roanoke	Jefferson Center
VA	Charlottesville	Paramount Theater
VA	Danville	North Theater
VA	Norfolk	Attucks Theatre
VT	Rutland	Paramount Center
VT	Burlington	Flynn Center for the Performing Arts
WA	Edmonds	Edmonds Center for the Arts
WA	Wenatchee	Stanley Civic Center
WA	Seattle	McCaw Hall
WI	Sturgeon Bay	Third Avenue Playhouse
WI	Brookfield	Sharon Lynne Wilson Center for the Arts
WI	Green Bay	Meyer Theatre
WI	Sheboygan	Weill Center for the Performing Arts
WI	Janesville	Janesville Performing Arts Center
WI	Appleton	Fox Cities Performing Arts Center
WI	Madison	Overture Center
WV	Charleston	Clay Center for the Arts
WV	Huntington	Keith Albee Performing Arts Center
WY	Sheridan	WYO Theatre

Table 20. Downtowns without a PAC between 2000-2007

State	City	State	City	State	City
AL	Florence	FL	Cape Coral	NH	Nashua
AL	Anniston	FL	Cocoa	NJ	Bloomfield
AL	Montgomery	FL	Fort Walton Beach	NJ	East Orange
AL	Gadsden	FL	Pompano Beach	NJ	Irvington
AR	North Little Rock	IA	Council Bluffs	NJ	Perth Amboy
AR	Springdale	IL	Peoria	NJ	Sayreville
CA	Alameda	IL	Rantoul	NY	Yonkers
CA	Alhambra	IL	Rock Island	OH	Elyria
CA	Bellflower	IL	Urbana	OH	Hamilton
CA	Berkley	IN	Anderson	OH	Marietta
CA	Buena Park	IN	Gary	OH	Middletown
CA	Burbank	IN	Hammond	OH	Springfeld
CA	Chula Vista	IN	Terre Haute	OH	Steubenville
CA	Compton	KS	Kansas City	OH	Warren
CA	Concord	LA	Bossier City	OR	Springfield
CA	El Monte	LA	Monroe	PA	Bethlehem
CA	Fountain Valley	LA	Kenner	PA	Chester
CA	Hayward	LA	Lake Charles	SC	Rock Hill
CA	Inglewood	MA	Chicopee	TX	Amarillo
CA	Napa	MA	Holyoke	TX	Brownsville
CA	Oceanside	MA	Lawrence	TX	Bryan
CA	Salinas	MA	Leominster	TX	Denison
CA	San Leandro	ME	Auburn	TX	Killeen
CA	Whittier	MI	Pontiac	TX	Longview
CT	Bristol	MN	Moorhead	TX	McAllen
CT	Meriden	MN	Rochester	TX	Marshall
CT	Milford	MO	Joplin	TX	Texas City
CT	New Britain	MO	Kansas City	VA	Danville
CT	Norwalk	MO	Springfield	VA	Hopewell
FL	Baldwin	NC	Gastonia	VA	Newport News
FL	Boca Raton	NC	Hickory	WI	Kenosha
FL	Bradenton	NC	Salisbury	WI	Superior

Table 21. Overall PAC Health: PACs that opened before 2000

State	City	Performing Arts Center
AK	Anchorage	Alaska Center for the Performing Arts
AL	Birmingham	Alabama Theatre for Performing Arts
AR	Fayetteville	Walton Arts Center
AZ	Chandler	Chandler Cultural Foundation
CA	Bakersfield	Fox Theatre
CA	Escondido	California Center for the Arts
CA	Glendale	Alex Theatre Performing Arts
CA	Lancaster	Lancaster Performing Arts Center
CA	Oakland	Paramount Theatre of the Arts
CA	Paradise	Paradise Performing Arts Center
CA	San Francisco	Palace of Fine Arts
CA	Santa Rosa	Wells Fargo Center for the Arts
CA	Visalia	Visalia Fox Theatre
CO	Colorado Springs	Pikes Peak Center
CO	Denver	Denver Center for the Performing Arts
CO	Durango	Durango Arts Center
CT	Bridgeport	The Klein Memorial Auditorium
CT	Hartford	Horace Bushnell Center
CT	New London	Garde Arts Center
CT	Stamford	Palace Theatre
CT	Torrington	Warner Theater
DC	Washington	John F. Kennedy Center
DE	Wilmington	Grand Opera House
FL	Brandon	Center Place
FL	Clearwater	Ruth Eckerd Hall
FL	Jacksonville	Florida Theatre
FL	Lakeland	Polk Theatre
FL	Pensacola	Saenger Theatre
FL	Tampa	Tampa Bay Performing Arts Center
FL	West Palm Beach	Raymond F. Kravis Center
GA	Atlanta	Woodruff Center
GA	Augusta	Imperial Theatre
GA	Columbus	Springer Opera House
GA	Duluth	Gwinnett Convention Center
HI	Honolulu	Hawaii Theater Center
HI	Kamuela	Kahilu Theatre
IA	Des Moines	Civic Center
ID	Sandpoint	Performing Arts & Humanities/Panida
IL	St. Charles	Dellora A. Norris Center
IN	Anderson	Paramount Theatre
IN	Fort Wayne	Fort Wayne Embassy Theatre
IN	Indianapolis	Madame Walker Center
IN	Lafayette	Long Center for the Performing Arts

Table 21. Overall PAC Health: PACs that opened before 2000, *continued*

State	City	Performing Arts Center
KS	Topeka	Topeka Performing Arts Center
LA	Lafayette	The Heymann Center
LA	Shreveport	Strand Theatre
MA	Boston	Wang Theatre
MA	New Bedford	Zeiterion Theatre
MD	Hagerstown	Maryland Theatre
ME	Bangor	Penobscot Theatre
MI	Adrian	Croswell Opera House
MI	Coldwater	Tibbits Opera House
MI	Detroit	Music Hall Center
MI	Flint	Flint Cultural Center
MI	Ironwood	Ironwood Theatre
MI	Lapeer	Pix Theatre
MI	Muskegon	Michigan Theatre
MN	Fergus Falls	Fergus Falls Center for the Arts
MN	Minneapolis	Guthrie Theatre
MN	St. Cloud	St. Cloud Civic Center
MN	St. Paul	Ordway Center for the Performing Arts
MO	Kansas City	Gem Theater
MT	Billings	Alberta Bair Theater
MT	Butte	Butte Center for the Performing Arts
MT	Whitefish	Whitefish Theatre
NC	Ahoskie	Gallery Theatre
NC	Asheville	Pack Place for the Performing Arts
NC	Charlotte	North Carolina Blumenthal Center
NC	Durham	Carolina Theatre of Durham
NC	Greensboro	Carolina Theatre of Greensboro
NC	High Point	High Point Theatre
NC	Wilmington	Thalian Hall Center
NH	Concord	Capitol Center
NH	Keene	Colonial Theatre
NH	Manchester	Palace Theatre
NJ	Newark	New Jersey Performing Arts Center
NJ	Trenton	Patriots Theater
NM	Alamogordo	Flickinger Center for the Performing Arts
NY	Brooklyn	Brooklyn Academy of Music
NY	Elmira	Clemens Center
NY	Endicott	Endicott Performing Arts Center
NY	Erie	Kleinhans Music Hall
NY	Fredonia	1891 Fredonia Opera House
NY	Mamaroneck	The Emelin Theatre
NY	Peekskill	Paramount Center for the Arts
NY	Poughkeepsie	Bardavon 1869 Opera House

Table 21. Overall PAC Health: PACs that opened before 2000, *continued*

State	City	Performing Arts Center
NV	Reno	Pioneer Center for the Performing Arts
NY	Rome	Rome Capitol Theatre
NY	Syracuse	Landmark Theatre
NY	Troy	Troy Savings Bank Music Hall
OH	Chillicothe	Majestic Theatre
OH	Cincinnati	Aronoff Center
OH	Cleveland	Allen Theatre Playhouse Square
OH	Gallipolis	Ariel Cultural Performing Centre
OH	Mansfield	Renaissance Theatre
OH	Toledo	Valentine Theater
OK	Norman	Sooner Theatre
OK	Ponca City	Poncan Theatre
OK	Tulsa	Tulsa Performing Arts Center
OR	Medford	Craterian Ginger Rogers Theatre
PA	Carlisle	Carlisle Regional Performing Arts Center
PA	Easton	State Theatre Center for the Performing Arts
PA	Lancaster	Fulton Theatre Opera House
PA	Meadville	Academy Theatre
PA	Scranton	Scranton Cultural Center
PA	Wilkes-Barre	FM Kirby Center for the Performing Arts
PA	York	Strand-Capitol Performing Arts Center
RI	Providence	Providence Performing Arts Center
SC	Greenville	Peace Center for the Performing Arts
SD	Sioux Falls	Washington Pavilion
TN	Chattanooga	Tivoli Auditorium
TX	Austin	Austin Theatre
TX	Conroe	Crighton Theatre
TX	Fort Worth	Bass Performance Hall
TX	Galveston	Grand 1894 Opera House
TX	Harlingen	Harlingen Performing Arts Theatre
TX	Temple	Cultural Activities Center
TX	Waco	Waco Hippodrome
UT	Logan	Cache Valley Center
VA	Blacksburg	Lyric Theatre
VT	Barre	Barre Opera House
VT	Burlington	Flynn Theatre for the Performing Arts
VT	Wilmington	Memorial Center for the Arts
WA	Bellingham	Mount Baker Theatre
WA	Bremerton	Admiral Theatre
WA	Olympia	Washington Center for the Performing Arts
WA	Seattle	Benaroya Hall
WA	Tacoma	Broadway Center
WV	Parkersburg	Smoot Theatre

APPENDIX D – LITERATURE REVIEW SUMMARY TABLE

TABLE 22. DOWNTOWN REVITALIZATION

BUILT ENVIRONMENT			
Source (year)	**Content**	**Methodological approach**	**Urban vitality variables**
Austrian, Rosentraub (2002)	Use of sports as an economic driver in cities. Case studies of Cincinnati, Cleveland, Columbus, Indianapolis	Case studies	Descriptions of business establishments
Baade (1994, 1988)	Sports stadiums and their economic impact in 36 cities	Economic impact	Direct expenditures by stadium patrons on **restaurants, hotels**, and other business establishments
Baerwald (1978)	Regeneration of Minneapolis-St. Paul	Case study	Descriptions of **residential housing**
Bajaj, Kingsley, Pettit (2005)	U.S. Census business patterns and trends by zip, cities, and counties	U.S. Census report	Numbers and growth patterns of business establishments by industry in 1998, 2000, 2002
Birch (2005, 2002)	Change in residents in 46 downtowns 1970-2000	Theoretical/ conceptual	Percent growth in **downtown housing** 1970-2000
Blau (1995)	Art museums in downtowns	Theoretical/ conceptual	Description of downtown **arts facility**
Brooks, Kushner (2001)	Benefits of downtown cultural districts on cultural institutions	Theoretical/ conceptual	Description of downtown **arts facility**
Clark, Lloyd, Wong, Jain (2002)	Use of amenities to drive urban growth	Case studies	Descriptions of **restaurants** and **hotels** as indicators of growth
Collins, Grineski (2007)	Impact of downtown stadiums in Phoenix	Case study Surveys	Numbers of business establishments before and after the entrance of the stadium
Currid (2010)	Arts transforming Manhattan's Lower East Side	Theoretical/ conceptual	Descriptions of historic buildings and **housing** in urban transformation
Eisinger (2000)	Political & social implications of large entertainment projects	Theoretical/ conceptual	Description of **restaurants** as an indicator of touring entertainment activities
Faulk (2006)	Revitalization stages in New Albany, Jefferson, IN	Case studies	Descriptions of downtown **housing** as indicator of revitalization
Filion, Hoernig, Bunting, Sands (2004)	Characteristics of successful small downtowns	Surveys Case studies	Descriptions of business establishments and historic buildings
Frieden, Sagalyn (1990)	Use of downtown malls for revitalization	Theoretical/ conceptual	Descriptions of downtown business establishments
Gale (1991)	Historic preservation and policy implications	Theoretical/ conceptual	Descriptions of historic buildings
Handy, Boarnet, et al (2002)	Provides a model of built environment factors that affect human activity downtown	Theoretical/ conceptual	Descriptions of business establishments

TABLE 22. DOWNTOWN REVITALIZATION, *continued*

BUILT ENVIRONMENT			
Source (year)	**Content**	**Methodological approach**	**Urban vitality variables**
Herald (1977)	Examines non-auto zones in Burlington, VA for improved downtown retail	Case study	Descriptions of business establishments
Lambert (2006)	Mixed-use buildings encourage city activity	Theoretical/ conceptual	Descriptions of **residential housing** with business establishments
Leinberger (2005)	Twelve projects to encourage downtown revitalization	Theoretical/ conceptual	Descriptions of **residential housing** with business establishments
Leithe, Tigue (2000)	Economic impact of historic preservation in Georgia	Theoretical/ conceptual	Description of historic buildings in downtown
Listoken, Listoken, Lahr (1998)	Contributions of historic buildings to housing and revitalization	Theoretical/ conceptual	Description of historic buildings
Lloyd, Clark (2001)	Urban growth explained by leisure amenities	Theoretical/ conceptual	Description of **arts facilities** as part of urban growth
Markusen (2007)	Use of culture to revitalize the urban core	Theoretical/ conceptual	Description of historic buildings and **arts facilities**
Markusen (2006)	Use of consumption base theory vs. export theory to explain economic development in the urban core	Theoretical/ conceptual	Descriptions of **restaurants** and **housing** in city vitality
Markusen, Gadwa (2010)	New research agendas on arts and culture associated with regional economic development are proposed	Theoretical/ conceptual	Description of historic buildings
Mason (2005)	Literature review of studies about historic preservation	Literature review	Description of historic buildings for community vitality
Mitchell (2001)	Use of business improvement districts in downtown revitalization	Surveys	Description of historic buildings in downtown
Montgomery (2003)	Artistic and cultural quarters are central to urban regeneration. Part I provides a typology for cultural quarters; Part II considers four case studies in Europe.	Theoretical/ conceptual Case studies	Descriptions of **restaurants** and business establishments
Mouton (1999)	Identifies ten criteria for a livable downtown, including housing, entertainment, cleanliness, and safety.	Theoretical/ conceptual	Descriptions of downtown **residential housing**
Robertson (2004, 1999,.1997, 1995, 1990, 1983)	Strategies for regenerating smaller downtowns through the Main Street approach, pedestrian malls, and other retail activities	Theoretical/ conceptual	Descriptions of business establishments and historic buildings
Rypkema (2006, 2002, 2001)	Economic and community benefits of historic restoration	Theoretical/ conceptual	Descriptions of historic buildings in community vitality

TABLE 22. DOWNTOWN REVITALIZATION, *continued*

BUILT ENVIRONMENT			
Source (year)	**Content**	**Methodological approach**	**Urban vitality variables**
Sohmer (1999)	Use of downtown housing as a revitalization tool	Theoretical/ conceptual	Descriptions of downtown **residential housing**
Spirou/Loftman (2004)	Chicagto (US) and Birmingham (UK) are studied fror their cultural policies as economic drivers for their urban cores	Case studies	Descriptions of urban **residential housing** and business establishments
Stone, Surti (1975)	A feasibility model for a pedestrian mall in Denver is analyzed for its effectiveness	Theoretical/ conceptual Case studies Cost-benefit	Business establishments – measuring sales and property tax increases as a result of pedestrian malls
Strom (2006, 2003)	The political base for downtown development has shifted. Case studies examine Philadelphia, Charlotte, and Seattle.	Theoretical/ conceptual Case studies	Description of **performing arts centers** used in downtown development
Strom (2002)	Examination of 65 cities and the mutual benefits of arts facilities with their downtown cores.	Theoretical/ conceptual	Description of **arts facilities** in downtown areas
Strom (1999)	Case study of the New Jersey Performing Arts Center and its contribution to urban revitalization in Newark, NJ	Case study	Description of a **performing arts center** in the urban core
Throsby (1982)	Socioeconomic benefits of arts facilities are discussed, with an examination of an arts centre in Mildura, Victoria in Australia.	Case study Survey Cost-benefit	Net income/loss of **arts facility**; community survey about arts facility
Turner (2002)	Cities are more willing to give private control over formerly public space, in exchange for economic return. Case studies on Jacksonville, Orlando, Phoenix, and Baltimore.	Case studies	Descriptions of **residential housing** in cities.
U.S., Dept. of Housing and Urban Development (2001)	Case studies of cities that found ways to revitalize their economy: Akron, Boise, Denver, Fargo, Louisville, Newark, Oakland, Omaha, Providence, and Wilmington	Case studies	Descriptions of business establishments, including **restaurants**
Voith, Wachter (2009)	Revitalized cities increased their population, but now experience a conflict in providing affordable housing.	Theoretical/ conceptual	Descriptions of **residential housing** in cities
Walker, Enz (2006)	The economic impact of professional sports facilities on the local economy, noting the shift from public funding to private investment	Theoretical/ conceptual	Descriptions of **restaurants** and other business establishments

TABLE 22. DOWNTOWN REVITALIZATION, *continued*

BUILT ENVIRONMENT			
Source (year)	**Content**	**Methodological approach**	**Urban vitality variables**
Weisbrod, Pollakowski (1984)	Eight downtown projects are examined for downtown impact and compared with other areas of the city.	Case studies	Descriptions of business establishments
Zukin (1982)	Examines urban loft living in New York City's SoHo District in the 1960s and 1970s, and the use of cultural districts to revitalize the urban core.	Theoretical/conceptual	Descriptions of **residential housing** in the urban core

TABLE 22. DOWNTOWN REVITALIZATION, *continued*

HUMAN CAPITAL			
Source (year)	**Content**	**Methodological approach**	**Urban vitality variables**
Baerwald (1978)	Regeneration of Minneapolis-St. Paul	Case study	Description of **population** dispersement
Birch (2009, 2007)	Typologies of growing cities	Theoretical/conceptual	Percent change in **population, educated workers, income**, and downtowners **age 18-64** 1970-2000
Clark, Lloyd, Wong, Jain (2002)	Use of amenities to drive urban growth	Case studies	Descriptions of arts activities, **income, educated workers,** and **age** of downtowners
Cohen (2000)	Business relocation and recruiting	Surveys	Survey identify the need for **educated workers**
Currid (2010)	Arts transforming Manhattan's Lower East Side	Theoretical/conceptual	Descriptions of arts activities, and type of labor force
Eisinger (2000)	Political and social implications of large entertainment projects	Theoretical/conceptual	Descriptions of arts/entertainment activities and **population** involved
Filion, Hoernig, Bunting, Sands (2004)	Characteristics of successful small downtowns	Surveys Case studies	Descriptions of arts activities, and demographics of **labor force**
Frieden, Sagalyn (1990)	Use of downtown malls for revitalization	Theoretical/conceptual	Descriptions of arts activities
Glaeser, Gottlieb (2006)	Impact of skilled workers on city growth	Regression	**Population** and **income** growth (%) over five decades; numbers of **educated** residents attending arts activities
Glaeser, Saiz,. et al (2004, 2003)	Impact of skilled workers on city growth	Regression	Percent change in **educated workers** 1990-2000
Handy, Boarnet, et al (2002)	Creates a model of built environment factors that affect human activity downtown	Theoretical/conceptual	Description of downtown manufacturing labor force
Kunstler (1994)	The rise of man-made landscapes in America through parking lots and strip malls	Theoretical/conceptual	Descriptions of the **educated population** and their **income** levels
Linneman, Saiz (2006)	Forecasting 2020 population growth in U.S. counties and metropolitan areas	Regression	Percent change in **population** and **age** of downtowners 1980-2000
Lloyd, Clark (2001)	Urban growth explained by leisure amenities	Theoretical/conceptual	Descriptions of downtown manufacturing labor force, total labor force, and **educated workers**.
Markusen (2007, 2006, 2004)	Use of culture to revitalize the urban core	Theoretical/conceptual	Descriptions of **artists** and **arts employees, educated workers, population, age** demographics and **income** levels within the urban core

TABLE 22. DOWNTOWN REVITALIZATION, *continued*

HUMAN CAPITAL			
Source (year)	**Content**	**Methodological approach**	**Urban vitality variables**
Markusen, Gadwa (2010)	New research agendas on arts and culture in association with regional economic development are proposed.	Theoretical/ conceptual	Descriptions of **arts organizations, artists** and arts activities, **population**, and **income** within the urban core.
Markusen, Schrock, Barbour (2004)	Use of local arts as imported, instead of exported goods may decrease urban erosion	Theoretical/ conceptual	Descriptions of **income levels** and **ages** of downtowners
Molotch (1976)	Defines the political economy of the urban core as central to growth, noting population increase as the most successful growth indicator	Theoretical/ conceptual	Description of **population** and **population density**
Montgomery (2003)	Artistic and cultural quarters are central to urban regeneration. Part I provides a typology for cultural quarters; Part II considers four case studies in Europe.	Theoretical/ conceptual Case studies	Descriptions of arts activities, **arts support**, and **income** levels in downtown
Mouton (1999)	Identifies ten criteria for a livable downtown, including housing, entertainment, cleanliness and safety	Theoretical/ conceptual	Description of arts activities
Phillips (2004)	Presents a typology of arts-based approaches to developing vibrant downtowns	Theoretical/ conceptual Case studies	Description of **artists**, arts activities, and **arts support**
Robertson (2004, 1999, 1997, 1995, 1990, 1983)	Strategies for regenerating smaller downtowns through the Main Street approach, pedestrian malls, and other retail activities	Theoretical/ conceptual Case studies	Description of **arts, hotels,** and **food** employees
Rosentraub (1999-2000)	Addresses elements of downtown revitalization: 1)Great consumer experience; 2)Tourism; 3)Increased disposable income of Baby Boomers to spend downtown. Descriptions of Indianapolis and Phoenix sports stadiums.	Theoretical/ conceptual Case studies	Descriptions of downtown **income** categories, **education** levels, and types of occupation
Schnore (1963)	Analyzes 1960 Census data of 2000 urban areas, noting higher socioeconomic status in the suburbs of larger, older cities; and in smaller and newer urban cores	Regression	Percent of the urban core in **income** categories, **education** levels, and types of occupation
Scott (2004, 2000a)	Cultural-product industries are making a contribution to urban economic development	Theoretical/ conceptual	Description of arts activities in the urban core
Simmons, Lang (2001)	Study of 36 cities that lost population in the 1970s and regained growth in the 1990s	Theoretical/ conceptual	Percent change in downtown **population** 1950-2000

TABLE 22. DOWNTOWN REVITALIZATION, *continued*

HUMAN CAPITAL			
Source (year)	**Content**	**Methodological approach**	**Urban vitality variables**
Sohmer, Lang (2001)	24 downtowns are analyzed for population growth and racial composition over a ten-year period	Theoret5ical/conceptual	Actual values and percent changes in downtown **population** and **age levels** 1990,2000, 1990-2000
Voith, Wachter (2009)	Revitalized cities increased their population, but now experience a conflict in providing affordable housing	Theoretical/conceptual	Descriptions of downtown **population**
Whitt (1987)	The arts are becoming a useful tool as an economic development strategy for revitalizing the urban core.	Theoretical/conceptual	Descriptions of arts activities

TABLE 22. DOWNTOWN REVITALIZATION, *continued*

OTHER READINGS			
Source (year)	**Content**	**Methodological approach**	**Urban vitality variables**
Birch (2009, 2002)	Typologies of growing cities	Theoretical/conceptual	Comparison of cities by **geographic regions**; Growth in **population density** 1970-2000
Frieden, Sagalyn (1990)	Use of downtown malls for revitalization	Theoretical/conceptual	Descriptions of occupations in the new downtowns: lawyers, bankers, business specialists
Glaeser, Gottlieb (2006)	Increased social interaction in cities versus suburbs	Regression	**Population density** 1990-2000
Glaeser, Shapiro (2003)	Use of skills, climate, and autos to predict downtown growth	Regression`	Percent change of urban demographics by **geographic region** 1990-2000
Markusen, Schrock, Barbour (2004)	Use of local arts as imported good, instead of exported goods may decrease urban erosion	Theoretical/conceptual	Descriptions of occupations within the new downtown: child care, healthcare, household, and social services
Molotch (1976)	Defines the political economy of the urban core as central to growth, noting population increase as the most successful growth indicator	Theoretical/conceptual	Description of **population density**

TABLE 23. OVERALL PAC HEALTH

NONPROFIT ORGANIZATIONS – FINANCIAL ANALYSIS			
Source (year)	**Content**	**Methodological approach**	**Urban vitality variables**
Blackwood, Pollak (2009)	Examines operating reserves of 2,648 nonprofits in Greater Washington, DC in the year 2006	Theoretical/conceptual	Numbers of **revenue sources**; ratios of operating reserves; **Age** categories of organizations
Greenlee, Trussel (2000)	Financial vulnerability of 4,000 nonprofits in 1993-1995 using Tuckman-Chang (1991) financial ratios	Regression	Numbers of **revenue sources**; numbers of organizations in categories of operating margins
Hager (2001)	Examines financial vulnerability of 7,266 nonprofit arts organizations in 1990, 1991, 1992	Regression	Types of **revenue sources**; numbers of organizations in categories of operating margins
Hager, Pollak (2002)	800 performing arts presenting organizations are examined for their programs, financial sustainability, and leadership	Cost benefit Surveys	Numbers of organizations by organizational **size**, **geographic location**, numbers of **performing arts centers**
Kuan (2001)	Examines nonprofit existence through an economic model of contract theory, using performing arts organizations	Theoretical/conceptual	Types of **revenue sources**
Kushner, Pollak (2003)	The financials of 472-797 arts presenting organizations are examined for their financial status in 2001 and 2002	Theoretical/conceptual	Types of **revenue sources**; numbers of organizations showing **net gains/net losses**
Ritchie, Kolodinsky (2003)	Examines the financial performance of 122 university foundations using 16 financial ratios between 1990-1995	Case studies	Numbers of organizations and their financial ratios, including **net gains/net losses**
Trussel (2002)	Revisiting the prediction of financial vulnerability by examining 94,000 nonprofit organizations	Regression	Number of organizations in each financial ratio category
Tuckman, Chang (1991)	Presents four ratios to measure the financial vulnerability of 4,730 nonprofit organizations	Theoretical/conceptual	Number of organizations in each financial ratio category

TABLE 23. OVERALL PAC HEALTH

ORGANIZATIONS – EFFECTIVENESS			
Source (year)	**Content**	**Methodological approach**	**Urban vitality variables**
Carter, Prosperi, et al (2005)	Management system of Broward PAC in Ft. Lauderdale	Case study	(setting context)
Cutts, Drozd (1995)	Management of Canada's Roy Thompson Hall and Massey Hall, using six key non-financial objectives	Case studies	(setting context)
Freedman (1986)	Examines management relationships between performing arts centers and their resident companies	Theoretical/conceptual	(setting context)
Gallagher (2003)	Use of Bushnell Center in business development	Case study	(setting context)
Gordon, Stoner (1995)	Kennedy Center for the Performing Arts education programs	Case study	Discussion of the need for **arts support**
Sawhill, Williamson (2001)	Case study of the Nature Conservancy measures the performance in impact, activity, and capacity	Theoretical/conceptual	(setting context)
Scott (2003)	Compares approaches to studying organizations by addressing the organizational environment, strategies, structure, and theoretical perspectives	Theoretical/conceptual	(setting context)
Sowa, Selden, Sandfort (2004)	Presents a multidimensional model for measuring nonprofit organizational effectiveness. Financial, program, and management systems are discussed	Theoretical/conceptual	(setting context)
Swoboda, Brown (1993)	Cutting costs in automobile production through customized mass production	Theoretical/conceptual	(setting context)
Woronkowicz (2011 ab)	Examines the investment determinants of 700 new cultural facilities and surveyed 500 arts organizations between 1994-2008. Four case studies are provided.	Case studies Surveys Regression	Population with **bachelor's degree or higher** in the MSA, Numbers of **arts employees** and **arts organizations**

TABLE 23. OVERALL PAC HEALTH

ORGANIZATIONS – SURVIVAL			
Source (year)	**Content**	**Methodological approach**	**Urban vitality variables**
Dunne, Hughes (1994)	Growth and survival rates of 100 UK companies	Regression	Numbers of organizations by **size** and **age**
Evans (1987)	Examines 100 manufacturing firms for the relationship between growth, size, and age	Regression	Numbers of organizations by **size** and **age**
Frank (1988)	An empirical model of industrial exits is presented		Numbers of organizations by **size** and **age**
Geroski, Mata, Portugal (2007)	The industrial condition under whichy a firm is founded affects its ultimate survival	Regression	Numbers of organizations by **size** and **age**
Hall (1987)	Examines U.S. manufacturing firm growth between 1976-1983, based upon employment data	Regression	Numbers of organizations by **size** and **age**
Hannan (1998)	Relationship between organizxational age and mortality	Theoretical/conceptual	Numbers of organizations by **size** and **age**
Hannan, Carroll, Dobrev, Han (1998, I & II)	Nearly 4,400 European and U.S. auto manufacturers are examined for their mortality rates.	Regression	Numbers of organizations by **size** and **age**
Hannan, Freeman (1977)	External competitive environment has an effect on an organization's ability to survive. Theoretical models are presented for future empirical research.	Theoretical/conceptual	Definitions of organizational **size** and **age**
Haveman (1993)	Examines relationship between size of 308 savings and loan firms and their capacity to expand into new markets	Regression	Numbers of organizations by **size** and **age**
Kimberly (1976)	Eighty previous studies have defined organizational size broadly. A new definition takes into account the nuances of different industries.	Theoretical/conceptual	Definitions of organizational **size** and **age**

TABLE 23. OVERALL PAC HEALTH

NONPROFIT PERFORMING ARTS			
Source (year)	**Content**	**Methodological approach**	**Urban vitality variables**
Americans for the arts (2002)	Economic impact of 6,080 arts organizations 1994-2002	Surveys, economic impact	Number of arts organizations by income categories
Baumol, Bowen (1966)	Performing arts and the economic dilemma	Theoretical/conceptual	Descriptions of arts facility; number of arts facilities by **geographic region**
DiMaggio, Mukhtar (2004)	Arts participation analyses from SPPA data in 1982, 1992, 2002	Theoretical/conceptual	Numbers of arts participants by **education** and **income** categories
DiMaggio, Useem (1978)	Sociological characteristics of arts consumers	Theoretical/conceptual	Description of arts consumers with **education** and **income** levels
Gray (2003)	Examines arts participation through 1997 SPPA data	Regression	Numbers of arts participants by **education** and **income** categories
Heilbrun (1996)	Examines geographic location of artists 1980-1990	Regression	Proportion of **artists** in the U.S. by **geographic region**
McCarthy, Brooks, et al (2001)	Examines recent trends in the arts, with implications for future arts policies	Theoretical/conceptual	Descriptions of arts organizations by budget **size**
National endowment for the arts (2009, 1981)	Reports on the SPPA results of public participation in the arts, and the economic impact of arts and cultural institutions	Surveys Economic impact	Number of participants by **education** and **income** levels
Rockefeller Brothers Fund (1965)	Challenges and prospects of the performing arts	Theoretical/conceptual	Description of available **revenue sources** of arts organizations
Seaman (2000)	Examination of arts economic impact studies, their value as well as misunderstandings	Theoretical/conceptual	(setting context)
Sterngold (2004)	Economic impact studies on the arts may be used to justify the arts' existence and decrease the quality of arts activities	Theoretical/conceptual	(setting context)
Stern, Seifert (1998)	Case studies of cultural participation and civic engagement in five Philadelphia neighborhoods	Case studies	(setting context)
Wyszomirski (2002, 1995)	State of the arts in the U.s. and arts policy after the cultural conflicts of public officials from the 1980s and beyond	Theoretical/conceptual	Description of available **revenue sources** for arts organizations

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